THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal ESTABLISHED 1835 · RAILWAY RECORD.
RAILWAYS ILLUSTRATED · THE RAILWAY OFFICIAL GAZETTE

33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1
Telephone: WHItehall 9233 (12 lines) *Telegrams: "Trazette, Parl, London"*

BRANCH OFFICES
GLASGOW : 87, Union Street . . . . . *Central 4646*
NEWCASTLE-ON-TYNE : 21, Mosley Street . . *Newcastle-on-Tyne 22239*
MANCHESTER : Century House, St. Peter's Square . *Central 3101*
BIRMINGHAM : 90, Hagley Road, Edgbaston . *Edgbaston 2466*
LEEDS : 70, Albion Street . . . . . *Leeds 27174*

Annual subscription £3 10s. 0d. post free. Single copies, One shilling & Sixpence
Registered at the G.P.O. as a newspaper. Entered as second-class matter in U.S.A.

Vol. 95] FRIDAY, AUGUST 31, 1951 [No. 9

CONTENTS

	PAGE
Editorial Notes	225
Customs Examinations Delaying Boat Trains	227
Anglo-Irish Travel	227
British Transport Commission Traffic Receipts	228
Mr. H. G. Brown	228
Raoul Dautry	229
Letters to the Editor	230
The Scrap Heap	232
Overseas Railways Affairs	233
Integration of Transport	234
Canadian Pacific "Selkirk" Locomotives	236
Personal	243
News Articles	246

"The Railway Gazette"—Increased Price

THE constant increase in publishing costs, of which the principal constituents are the level of printers' wages and the price of paper, which has occurred with increasing severity during the past eighteen months, has made it necessary in recent months for a number of our contemporaries to raise their price per issue and their annual subscription. We regret to inform our readers that, despite adopting every course open to us to absorb the impact of these higher costs, it is no longer possible for us further to postpone adopting similar measures, and that as from our next issue the price of *The Railway Gazette* will be increased to 2s. per single copy and £4 10s. post free for annual subscribers. The reasons which have made this necessary will be familiar to many, but apart from the general increases in prices to which publishers are subject in common with the rest of the business community, some details of two of the major factors may be of interest. Since April, 1950, the price of paper has risen on five occasions by amounts ranging up to £34 per ton. The effect of these increases has been to double the cost of the paper used by *The Railway Gazette* and its associated publications during the last year. Printing costs have also risen sharply, in large part as a result of increases in wages to compositors and other printing operatives granted through the normal arbitration machinery in the industry. Since the beginning of this year there have been two increases in the cost of printing; the first, in April, of 5 per cent. and the second, in July, of an additional 10 per cent. The effect of these advances has been to raise the cost of printing to publishers by almost 17½ per cent. this year. The alternative to an increase in the price of the journal would have been to reduce the number of editorial pages in each issue—a course which has been adopted by some of our contemporaries. No reduction in the number of editorial pages of *The Railway Gazette* or of any of its associated journals has been made or is contemplated, because it has been felt in the best interests of the industries served to maintain a full and comprehensive service.

"Playing at Trains"

UNDER this title *The Manchester Guardian* in a leading article last week reviewed the labour situation on British Railways. Regarding the wage claim now under discussion, the article points out that even with overtime and similar payments, which increase weekly earnings, skilled railwaymen are poorly paid compared with workers in other industries. It emphasises, however, the security of railway employment. Before the last war, it was accepted that the railwayman "paid for an almost Civil Service security of tenure . . . by earning rather less than his industrial neighbours"; but railwaymen now desire security—and their considerable travel privileges—and, in addition, pay that compares not unfavourably with that of other workers. There is, as *The Manchester Guardian* says, no mysterious process which can produce funds for sudden new railway wage increases. The State must not default on its obligations to shareholders of nationalised railways. The only way to enable the railways to pay their way, and pay higher wages, is a real effort to achieve manpower economy. The article criticises the slow progress made in this direction since February in the discussions between the Railway Executive and the unions, and the unreasonableness of the latter in their objections to measures such as abolition of lodging turns. "The endless arguments . . . put in the way of efficient railway working," it states, "are too much like those of fractious children playing at trains." Until this attitude changes, the railways will continue "on the edge of bankruptcy."

Trade Union Obstruction

THE work of the Special Joint Committee of the Railway Executive and three railway unions was considerably increased in July by further Railway Executive proposals to economise in manpower; they were discussed in our July 20 issue, and comprise, briefly, employment of Italian labour, the forgoing of one week's holiday by some operating grades, and the voluntary working by these grades of an extra 4 hr. a week in certain circumstances. Nevertheless, the Special Joint Committee has been in existence over six months, and, as *The Manchester Guardian* points out, there are few visible results of its labours apart from the abolition of the obsolete practice of "knocking-up." Although the Committee proceedings are not published, it seems clear that the slowness of progress is due to the intransigence of some of the union representatives. This has certainly been the case in the question of lodging turns, under discussion since February. What in this instance is particularly damning is that in some Regions abolition of lodging turns has been accepted by the mass of the men concerned. The time is surely long past and the situation too serious for trades unions to try to justify their existence in their members' eyes by obstinacy of this sort.

London Transport Problems

FOR the third time Lord Latham has issued a letter* in booklet form to London Transport staff dealing with the work and policy of the undertaking during the previous year. Lord Latham stresses the point that, though improvements in services and substantial replacements of buses and rolling stock were made during the period, they must face the fact that London Transport did not pay its way in 1950. Traffic receipts were down by £678,000 and

* "The Third Year—A Personal Letter from the Chairman." Published by the London Transport Executive, 55, Broadway, London, S.W.1

working expenses up by £1,218,000. Earnings, moreover, fell considerably short of the minimum contribution they should make towards interest and other capital charges, even without providing for the financial reserves called for. Out of every £1 received from fares, etc., 12s. 6d. went in wages and other staff costs, while during the twelve months the price of almost everything used by London Transport went up still more. The letter appeals to the staff to make that extra effort needed to prevent waste and create revenue which might make all the difference between good results and bad.

Still No Payment for the Leopoldina

ALTHOUGH the Leopoldina Railway Company was assured earlier this year that payment of the purchase price of £10,000,000, for the company's assets in Brazil, agreed on in May, 1949, and ratified by the Brazilian Parliament last year, was held up only by the change of Government, the debt remains unsettled. There seems no further reason for delay, for Brazil no longer suffers from a shortage of foregn exchange. It has been said that the reluctance may arise from the tendency of President Vargas's government to reverse the decisions of its predecessor as a matter of course. This, if true, is a short-sighted policy, particularly as Brazil needs a continued flow of foreign capital, British included, to carry out large-scale capital development. The latest information is that the Brazilian Minister of Finance is reported to have said that legal formalities are now alone responsible for the delay; he admits that no monetary difficulty is entailed as the sterling is already in Britain. As representatives of the company are stated to be in contact with the juridical department of the Brazilian Finance Ministry, the long drawn-out transfer may at last be made shortly.

Welding of Railway Rolling Stock

DURING a tour of the United States last October a productivity team from the welding industry in Britain visited 28 workshops, including several engaged in the manufacture of locomotives and coaching stock. Their findings, which are summarised in this issue, are of special interest today, bearing in mind the need for greater efficiency in the transport field and the growing appreciation in this country of the advantages of welding in railway practice, one example of which is to be found in the light-weight electric rolling stock for service in India built by the Metropolitan-Cammell Carriage & Wagon Co. Ltd., which we described in a series of articles, the first of which appeared in our April 27 issue. Welding plays a very important part in the construction and maintenance of all railway coaching stock in the U.S.A. and especially the application of resistance welding to stainless-steel passenger coaches and freight wagons. Problems created by corrosion are to a large extent being overcome by the use of stainless steels, the comparative cheapness of which, together with the development of welding techniques, has led to their extensive use in the U.S.A., and has also reduced overall weight.

Regulating Goods Traffic

THE Chairman of the British Transport Commission, Lord Hurcomb, early this year met representatives of the London Chamber of Commerce to discuss the delays to goods consigned by the nationalised transport services. As a result of this, and of discussions between the B.T.C., the Association of British Chambers of Commerce, and the Federation of British Industries, a joint memorandum has been issued. This outlines the difficulties faced by British Railways this autumn and winter, and enumerates some principles of control of movement, by observing which consignors can help the railways. The principles are not new, but it is as well that users of the railways should be reminded of them at a time when railway resources are likely to be taxed to their capacity. As set forth in the memorandum they are: Organisation of despatches to secure full wagon loads; regulation of despatches to coincide with flows of traffic to specific destinations, and "nominated loading" (naming certain days for despatches to certain destinations) in co-operation with local goods agents, so as to lighten the task of marshalling yards by securing through train working; despatching within the consignee's capacity to accept; ordering of wagons in relation to expected forwardings; and acceleration of unloading, including at week-ends. The London Chamber of Commerce rightly has advised its members to co-operate by observing the principles.

Increased Ferry Traffic via Dover-Dunkirk

THE growth of traffic by the Dover-Dunkirk train ferry has caused the French National Railways to introduce a fourth ferryboat, the *Saint-Germain*, which is illustrated elsewhere in this issue, to work the service jointly with the three existing British Railways vessels. Besides the through sleeping cars of the "Night Ferry" service between London and Paris, and many accompanied motorcars during the tourist season, there is heavy freight traffic in through wagons, which has risen some 50 per cent. in the last three years. Some 35 wagons can be conveyed by the *Saint-Germain*; she caters, however, not only for train ferry traffic, including apparatus for charging sleeping-car batteries and heating the cars from the ship's heating system, but makes provision for the passenger traffic carried by the ordinary Channel steamer. The passenger accommodation is luxurious and decorated in modern style; it includes a large lounge extending across the vessel, cocktail bar, and a large proportion of cabin accommodation. Motorcars can be driven from the quayside into the garage on the promenade deck, and the train deck is timbered to provide extra space for motorcars when desired. Propulsion is by two-stroke, single-acting diesel engines built under licence from Burmeister & Wain, of Copenhagen, by the Elsinore Shipbuilding & Engineering Company, builders of the vessel.

Fatal Derailment near Kirkbride

THE derailment on October 23, 1950, near Kirkbride, by which two enginemen lost their lives, was inquired into by Colonel D. McMullen, whose report appears in abridged form in this issue. The speed limit on the Carlisle-Silloth branch was then 60 m.p.h., and timings called for running up to 50, but 30 m.p.h. has now been imposed pending attention to the track. Various complaints had been received about rough riding, but these did not refer to the straight stretch where the derailment took place, where there were former N.B.R. 84-lb. rails, said to have been laid over 27 years ago, and which were worn down to 74 lb. Colonel McMullen's general conclusion is that the track was not in fit condition to carry trains at moderately high speeds, especially if hauled by heavy engines, such as the one involved. Its poor state had come about through continual postponement of rail renewals, resulting from shortage of materials, something which is having a most serious effect in other directions and threatens to become very grave if considerable improvement is not soon brought about.

Last of the C.P.R. Steam Locomotives

ELSEWHERE in this issue is described and illustrated the 2-10-4 "Selkirk" type "T1c" class locomotive of the Canadian Pacific Railway. Placed in service in 1949 these will be the last steam locomotives to be built for this railway. This possibility was referred to by Mr. W. A. Newman, Chief of Motive Power & Rolling Stock and Research Department, C.P.R., in his Sir Seymour Biscoe Tritton lecture on May 22, reference to which was made in an editorial article in our June 1 issue. These locomotives are used on passenger services in the mountain regions of Western Canada and they haul passenger and freight trains of 1,200 tons over Kicking Horse Pass. They are also used on the east- and west-bound transcontinental "Dominion" expresses. The engine frame is a single steel

casting of considerable proportions, and includes cylinders with combined saddle casting, air reservoirs, brake hanger brackets, and so on, and weighs approximately 30 tons, finish machined, without the cylinder and piston valve liners. Included in the article is a table of the salient features of boiler design of the "Selkirk" type, together with those of the British Railways standard Class "7" locomotive, and New South Wales Government Railways "D58" class engine

Customs Examinations Delaying Boat Trains

IN our last week's issue attention was drawn to the recent increase in the length of time taken by Customs examinations at a number of British ports and the resultant delays to boat trains. With some variation in degree, enquiries confirm that there has been a marked stepping up in the vigilance exercised by the customs authorities at all points of entry into Britain. No exception can be taken to this in principle; but when, as appears to be the case, particularly at some ports, the examinations are carried to extremes, or insufficient officers or men without enough training or experience to discharge their duties with despatch, are provided by Customs & Excise, there is legitimate cause for complaint both by travellers and by the railways whose services are disrupted.

On the Fishguard, Holyhead, and Liverpool services, dealing with traffic from the Republic of Ireland, the position in recent weeks has reached a stage which invites comment—and also demands immediate administrative action. The chaos which is being wrought in the timing of the boat train services is having a serious reaction in the public mind, which all too often is inclined to place the blame for late running on the railways.

The Holyhead-Dun Laoghaire services are shortly to be the subject of discussions between London Midland Region officials and Irish interests. The original basis of these talks was founded on much narrower considerations, but as their scope has now been greatly widened, an opportunity may arise to take action on the matter of Customs both at Holyhead and Liverpool. At Fishguard another Region is involved, the Western, and some details in connection with this port will serve to illustrate the general principles involved. On one occasion this month an observer in the Customs shed reports: "In my experience of many Customs examinations both in this country and abroad, I have never seen such a strict control. There was hardly a person or party of persons who did not have their bags opened and thoroughly examined, and the Search Room was occupied practically continuously by people who were being subjected to a more detailed search. At times travellers were waiting outside the Search Room for it to be vacated." His report also mentions "one woman with a suit case, a small grip and a personal handbag" being dealt with by a Customs official for ¾ hr., and "another woman, with a small baby about a year old, being interrogated and her luggage searched for at least ½ hr." The general impression gained was that the customs men were working strictly to rule. It is always difficult to cavil at this in theory, but in practice everyone associated with any form of industry is only too well aware of the consequences. "Working to rule" in many trades unions has become an effective sanction. Reasonable discretion and co-operation in getting a job done is essential to smooth working.

So much for actual operations in the Customs shed. They appear to be in marked contrast with the expedition shown at Dover. There only 35 minutes is allowed between the time of berthing the cross-Channel vessel and the departure of the "Golden Arrow" train, which usually leaves on time. The effect on the boat trains out of Fishguard Harbour may be illustrated by the following table compiled from workings on August 11, 14 and 16.

In the light of the delayed starting times it will be seen that some very creditable performances were achieved in train running, especially when it is borne in mind that many of the trains must have been out of their paths throughout the journeys. The effect on other traffic, however, is also a matter of serious difficulty to the railway operating department, for the reactionary delays resulting from the late running of principal trains is widespread. On August 11, for example, the delay to the Fishguard trains caused 15 other trains to be delayed—a total of 135 minutes; on August 14, 10 trains were delayed 109 minutes, and on August 16 there were 14 trains delayed 101 minutes.

	Min. late start	Min. late arrival at Paddington
Saturday, August 11		
3.35 a.m. (Relief) Fishguard to Paddington ...	60	35
3.55 a.m. Fishguard to Paddington ...	70	81
4.25 a.m. (Relief) Fishguard to Paddington ...	83	93
4.40 a.m. (Relief) Fishguard to Paddington ...	100	106
4.55 a.m. Fishguard to Paddington	103	135
Tuesday, August 14		
3.55 a.m. Fishguard to Paddington	127	144
4.25 a.m. (Relief) Fishguard to Paddington ...	170	167
4.55 a.m. Fishguard to Paddington	183	218
Thursday, August 16		
3.55 a.m. Fishguard to Paddington	On time	On time
4.25 a.m. (Relief) Fishguard to Paddington ...	40	26
4.55 a.m. Fishguard to Paddington	29	49

There is also the difficulty occasioned by the late arrivals into London of the boat trains themselves. On August 14, for instance, when the 4.55 a.m. train from Fishguard arrived at Paddington at 3.18 p.m.—218 minutes late— it was necessary to turn round the stock to form the 3.45 p.m. to Fishguard. The compartments were swept out, lavatory tanks filled and gas supplied to the dining car, and adjustments made in seat reservations—all in 29 min., for the train left on time—a credit to all the staff who rose to the occasion!

Anglo-Irish Travel

BY the time the conference is held next week between all parties concerned in the recent dispute on British Railways' Anglo-Irish marine services, with particular reference to the recent events on the Holyhead-Dun Laoghaire service on which we commented in last week's issue, a calmer atmosphere should enable matters to be seen in true perspective. The basis of what has grown into a somewhat heated dispute was quite simple: the inability of British Railways' ships to convey all intending passengers from Dun Laoghaire to Holyhead on August 10 and 11. The question has since been broadened to cover many aspects of Anglo-Irish sea and rail travel, including not only the question of sailing tickets *via* Holyhead-Dun Laoghaire, and embarkation arrangements at the latter port, but arrangements at Holyhead, connecting train services in Great Britain, and use of the Fishguard-Rosslare route to relieve congestion *via* Holyhead. The statement by Mr. John Elliot, Chairman of the Railway Executive, that restricted passenger-handling facilities at Dun Laoghaire impaired efficient operation of the steamer service has been stated by the Chairman of the Irish Tourist Board, Mr. J. A. Nugent, to be irrelevant; the Irish Tourist Board has submitted a report complaining of "unsatisfactory conditions" *via* Holyhead-Dun Laoghaire to Mr. Sean Lemass, Minister for Industry & Commerce; and there has been much argument, and comment and correspondence—some of it acrimonious—in the Irish press.

As regards British Railways, the question is essentially one for the London Midland Region, which is responsible for both the steamer services concerned and virtually all the connecting train services in Britain; it is satisfactory that British Railways will be represented at the conference on September 7 by L.M.R. officers. On the Irish side, besides the Irish Tourist Board, Coras Iompair Eireann is the transport agency directly concerned, with the Government of the Republic responsible, through the Board of Works, for Dun Laoghaire Harbour. Although the questions are mainly within the competence of the railway and harbour authorities, the question of Customs delays, which may arise, discussed elsewhere on this page, would need extraneous action.

In view of the great efforts since the war of C.I.E. and

the Irish Tourist Board to improve travel, it is understandable that resentment was occasioned by unfortunate occurrences such as those of August 10 and 11 at Dun Laoghaire during the tourist season. The remedies for the situation can be found only by collaboration in examination of a question of common interest to both British and Irish elements. There is clearly room for improvement in passenger handling at both Holyhead and Dun Laoghaire, and perhaps at other ports concerned with Anglo-Irish traffic. The operation of additional services from Dun Laoghaire by an Irish undertaking, which has been proposed by *The Irish Times,* is hardly likely to commend itself to either side, because there is insufficient traffic over the year to support it: the meagreness of out-of-season passenger traffic would ruin any undertaking without the resources of British Railways marine services. Nor, given the positions of Holyhead and Dun Laoghaire in relation to the population centres of the countries concerned, can a greatly extended use be made of the Fishguard-Rosslare route as a relief.

That Anglo-Irish passenger traffic, and especially that *via* Holyhead-Dun Laoghaire, is considered as of high importance by British Railways is shown in the recent provision of two new ships, and the attention paid now, as for a century past, to the running of the "Irish Mail," the oldest named train in Britain. There is no question of British Railways considering, as *The Irish Times* has suggested, that an inferior service is "good enough for the Irish." In any event, although no statistics of this kind are available, the passengers on the Holyhead-Dun Laoghaire services are by no means confined to Irish nationals. Apart from many English tourists and business visitors to the Republic, there must now be a fair traffic represented by those who have taken up residence in Ireland to escape the rigours of the Welfare State! The present dispute has arisen out of a combination of unfortunate circumstances; British Railways have shown goodwill in the commercial and transport spheres; and there is every ground for hoping that a fruitful and amicable solution will be achieved by the interests working for a common end.

British Transport Commission Traffic Receipts

FOR the eighth statistical period of 1951, the four weeks to August 12, and for the aggregate of 32 weeks of this year to that date, the receipts for all the major carrying activities of the British Transport Commission—(except road haulage, not yet included in this series of returns)—show increases over corresponding periods of 1950, with two exceptions. These are the aggregate for British Railways passenger traffic, and London Transport tram and trolleybus receipts both for Period 8 and for the aggregate. British Railways passenger receipts for the four weeks of the peak passenger traffic season are some 4·7 per cent. up on last year's. There is as yet no obvious explanation for this, especially in view of bad weather during the period, and no very marked increase reported in holiday-making generally.

	Four weeks to August 12		Incr. or decr.	Aggregate for 32 weeks		Incr. or decr.
	1951	1950		1951	1950	
British Railways—	£000	£000		£000	£000	
Passengers	13,627	13,006	+ 621	66,816	67,586	− 770
Parcels, etc., by passenger train	2,605	2,421	+ 184	19,971	18,179	+ 1,792
Merchandise & livestock	6,550	6,009	+ 541	59,061	51,827	+ 7,234
Minerals	2,462	2,289	+ 173	21,595	19,324	+ 2,271
Coal & coke	5,741	5,203	+ 538	54,197	45,429	+ 8,768
	30,985	28,928	+ 2,057	221,640	202,345	+ 19,295
Road Passenger Transport: Provincial & Scottish—						
Buses, coaches & trolleybuses	4,495	3,912	+ 583	26,195	23,389	+ 2,806
London Transport—						
Railways	1,238	1,076	+ 162	9,844	8,779	+ 1,065
Buses & coaches ...	2,756	2,464	+ 292	20,416	19,034	+ 1,382
Trolleybuses & trams ...	726	800	− 74	5,999	6,523	− 524
	4,720	4,340	+ 380	36,259	34,336	+ 1,923
Inland Waterways—						
Tolls	64	55	+ 9	524	438	+ 86
Freight charges, etc. ...	70	63	+ 7	547	524	+ 23
	134	118	+ 16	1,071	962	+ 109
Total	40,334	37,298	+ 3,036	285,165	261,032	+ 24,133

The explanation of the fall compared with last year of London Transport tram and trolleybus receipts is of course abandonment of tramway routes. In view of the Festival, the 12 per cent. increase in London Transport bus and coach receipts is disappointing, in the light of the London Passenger Charges Scheme in force from October last; the railway takings, however, are up 15 per cent. on 1950, which may be connected with late train services conveying Festival traffic.

In British Railways freight receipts, the only traffic for which the receipts were more than 10 per cent. over those for Period 8 of 1950, *i.e.*, the amount of rate increase last April, was coal and coke, with takings only slightly over 10 per cent. up. They were, however, some 17 per cent. below the receipts for Period 7, due to the incidence of the bank holiday in Period 8, and to seasonal decline in coal output. The decline, compared with the preceding period, in merchandise and livestock and in mineral traffic is probably due almost entirely to the bank holiday.

PERCENTAGE VARIATION 1951 COMPARED WITH 1950

	4 weeks to August 12	32 weeks to August 12
British Railways—		
Passengers	+ 4·7	− 1·1
Parcels	− 7·6	+ 9·8
Merchandise & livestock	− 9·0	+13·9
Minerals	− 7·5	+11·2
Coal & coke	+10·3	+19·3
Total	+ 7·1	+ 9·5
Road Passenger Transport	+14·3	+11·9
London Transport—		
Railways	+15·0	+12·1
Buses & coaches	+12·1	+ 7·2
Trolleybuses & trams	− 9·2	− 8·0
Total	+ 8·7	+ 5·6
Inland Waterways	+13·5	+11·3
Aggregate	+ 8·1	+ 9·2

Mr. H. G. Brown

THE closing years of last century brought signs of the approach of far-reaching changes in signalling practice in Great Britain, where the continuous perfecting of mechanical equipment had already resulted in a high level of safety, combined with ability to handle frequent services. Some twenty years before, attempts had been made, not only here, but also in America and on the Continent, to apply electricity and other forms of power to the operation of points and signals and to construct reliable automatic signalling systems. After many trials a good measure of success had been achieved and by 1900 it had become clear that the old well-tried methods would give way to the new where their advantages justified, while the rapid development of electric traction offered the possibility of providing train services beyond the capacity of mechanical signalling to handle economically, if at all. At this period of impending change Mr. H. G. Brown, whose death was reported briefly in our August 24 issue and whose career is outlined elsewhere this week, became connected with signalling on the Boston Elevated Railway.

This line had been completely equipped with some 150 electro-pneumatic semaphore signals—automatic and controlled—as well as point movements, train stops and continuous track circuiting. The track circuit had been known for some 25 years in America, but its application to an electric railway had up till then encountered seemingly insuperable obstacles. The Boston installation, however, had been fitted with a special polarised track relay having a wound swinging armature as well as a neutral one, with the object of eliminating undesirable effects from voltage drop in the traction return circuit. Mr.

Brown was instrumental in effecting some alterations, as the result of defects in the installation.

It was natural therefore that, when American interests began electrifying the District Railway and constructing tube lines, this successful signal system should be adopted by them and that Mr. Brown should become responsible for supervising the installation work. It was seen that the modernised District system could no longer be worked by the old mechanical signals and Sykes block instruments. Much work had to be done under the late Mr. W. A. Pearce, in re-designing the equipment to suit British conditions, especially the restricted space available in the old tunnels and new tubes. Some novel pieces of apparatus were produced, including the drum storage train describer, invented by Mr. Brown, and the first illuminated track diagram made its appearance on the District. This improved system of track circuiting, whose adoption in London was facilitated by the use of an insulated return rail, was applied also on the Metropolitan Railway and remained in use for many years, and even now has not entirely disappeared, although it has given place generally to a.c. track circuits.

At this time also the electro-pneumatic power system, introduced shortly before at Bishopsgate, London, began to find favour on the main lines in this country and rivalry developed between it and the low-pressure pneumatic and all-electric systems, constructed by different manufacturers. With the formation in 1907, under the late Mr. Sidney P Wood and with Mr. Brown as its Chief Engineer, of a special power-signalling undertaking to develop this work and maintain close relations also with old-established mechanical signalling concerns, Mr. Brown became more intimately connected with British signal engineering generally and the extension of its field of activity. In this capacity he contributed much to enhance the respect in which it had long been held and to build up the close association between signals and brakes which has played a great part in railway engineering and produced numerous excellent and serviceable devices. In this work he was associated with many capable engineers and administrators, whose share in it he unfailingly acknowledged and whose skill, long exercised under his direction, not only here but in many parts of the world, powerfully contributed to maintain at a high level the prestige of the British signalling industry.

Raoul Dautry

BY the death of Monsieur Raoul Dautry, of whom a biographical note appears on another page of this issue, France has lost a great patriot and one of her foremost citizens. The cause of Anglo-French friendship has, similarly, suffered an irreparable loss, but it is in his quality as a great railway administrator and distinguished engineer that he will be best known to readers of *The Railway Gazette* throughout the world. It is in that capacity that he himself would wish to be remembered for in 1928, on his appointment as General Manager of the then Etat Railway, he wrote " my life it is that of a railwayman who has only one passion, that is his profession." In reality the interests of few men have been more widespread—science, literature, art and the social sciences all attracted him and he was no mean authority on many of their branches.

As he was called on to undertake successively more important posts his mode of life never changed, his home in Paris remained unaltered for some thirty years and his Secretary, who had been with him when he was a young permanent-way engineer on the Nord Railway, was still his Secretary at the time of his death. Of tireless energy he had an exceptional flair for imbuing those who served under him with unswerving loyalty—the S.N.C.F. today owes much to those who can proudly claim to have been trained by Dautry. Some found him too hard a taskmaster for he never suffered fools gladly, and he optimistically expected others to work as hard as he did himself.

After graduating at the Ecole Polytechnique and army service he joined the Nord Railway in 1903 and specialised on permanent-way construction and maintenance. Always claiming that he learnt methods of good track maintenance in Britain, he introduced British methods on the Nord, including shovel-packing from the L.N.W.R., a method later developed into measured shovel-packing by his assistant Monsieur Maurice Lemaire, a postwar General Manager of the S.N.C.F. To further British practices he repeatedly sent members of his track forces across the Channel, in his own words " I have sent all my engineers, my inspectors, my gangers." When he agreed to become General Manager of the Etat Railway, at considerable financial sacrifice, those study visits embraced officers of all departments of that railway, and he expressed strong regret that, due to the need for rail standardisation throughout France, it was not possible to relay his lines with British-type bull-headed rail. The monumental annual reports of the Etat Railway in the early 1930's are models of their kind.

With nationalisation of all the French railways in 1937 Raoul Dautry retired, in June of that year, from the active railway administration; his last act, three hours before his resignation took effect, was to visit Versailles (Rive Droite) Station where reconstruction was in hand and the gardens being improved for the Paris Exhibition; the surprise of the station staff, still working at the gardens late in the evening, can well be imagined. Always referred to as " grand chef," it was those small human acts which made him so beloved of all his men, though few sterner disciplinarians can ever have existed. His work was varied in all spheres of transport since, for a period, he was Vice-President of the Compagnie Generale Transatlantique (French Line) and President of Aeropostale, a French air line. With the outbreak of war in 1939 he was appointed Minister of Armaments, but the time was too short before the collapse at Bordeaux in 1940 for major accomplishments. He lived in great danger during the years of occupation, but took a leading part in the Resistance movement; by a curious coincidence he reached Paris, in workman's garb from the unoccupied zone, on the day of the allied landings in Normandy of which he was unaware, but escaped to the south similarly clothed a few hours later. As Minister of Reconstruction from the end of 1944 he was able to do much for the S.N.C.F., particularly in the re-housing of its employees; one of his first schemes was at Avignon, where the backs of the houses are fitted up as shops—a typically Dautryesque conception.

Honours crowded on him, including Membre de l'Institut, perhaps the highest French honour, but he remained unchanged—Raoul Dautry, the railwayman or " cheminot," adviser of Cabinet Ministers, Engineers and Scientists. An advocate of the Channel Tunnel, one of his last acts was to pay tribute at Barentin to Joseph Locke, the Englishman who built the railway from Paris to Le Havre. Memorials exist to Dautry in his great works of reconstruction on the Nord after the first war, bridges, stations, viaducts, tunnels, not to mention the garden cities for the staff totalling 12,000 houses. In the inter-war period fine structures appeared on the Etat, now Région Ouest, such as the station at Deauville-Trouville, but his finest memorial will be in the spirit of the staff who served under him, for his concept of railway duties and responsibilities is being passed on by those he trained to the rising generation. Western Europe and the railway industry has indeed lost one of the stars of its firmament, and France one of her greatest sons.

C. E. R. S.

SCOTTISH REGION BRANCH LINES CLOSED.—The Scottish Region has announced that as from September 10 the passenger train service will be withdrawn from the Reston-Duns and Blairhill Gartsherrie-Bothwell branch lines. On the Blairhill & Gartsherrie-Bothwell branch the stations concerned are Coatbridge (Central) and Bellshill (L.N.E.R. Station); the existing arrangements in connection with freight train traffic will continue. The stations to be closed on the Reston-Duns branch are Chirnside, Edron, and Duns, but there will be no change in the freight train traffic arrangements.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

British Railways Publicity

August 6

SIR,—I hope I shall not be alone in protesting against the design of the information bureau at York illustrated in your August 3 issue. I do not know the street in question, but no amount of dummy carcases will ever persuade me that this office is either as efficient or appropriate as a more honest design.

It has apparently aroused interest, no doubt. That the British public has morbid tastes is abundantly clear to anyone who passes a street accident; and these tastes are already catered for by the sensational press. Why should British Railways encourage them?

We have had the Tavern car, and we have had the puerile smugness of "Biff" and "Buff"; do these things really represent what the public wants, or what those in authority think they ought to want? Too much of the present work of British Railways publicity departments is put to shame by that of responsible bodies such as the London Transport Executive, the G.P.O., and many other undertakings, public and private. Such an astonishing lack of dignity will never attract new customers. Granted that 99 out of 100 people do not care what visual standards are set by the railways, it is the hundredth who could be attracted as a regular customer by a sensible and straightforward design policy in all departments from publicity to rolling stock. The sooner the publicity organisation discards its patronising "Father Xmas and the Kiddies" attitude, the sooner our railways will command public interest and support.

Yours faithfully,

IAN COLQUHOUN

22a, Queensdale Road, W.11

Muddled Thinking on Railway Wages

August 24

SIR,—Mr. Moxley, in his letter published in your issue today, really strikes at the root of the whole problem of nationalisation. If his logic be followed to the bitter end not only nationalisation but the whole policy of the Labour Party stand condemned as ineffective and unrealistic.

"Working results," he says, "are what matters." Interest on compensation stock should be regarded as apart from working expenditure, according to him. He says that "working results of the Commission's undertakings had indicated a very substantial net surplus," meaning that really a net profit was made, but that the fixed-interest payments on the stock exceeded the profit by several millions! Are our Socialists really so enmeshed in a doctrine worked out in 1850 or thereabouts that they cannot see what this means? If this had happened in a private company with risk-bearing shareholders, the dividend, being by no means fixed, would have been cut according to the funds available. On the other hand, of course, the shareholders, having taken a severe jolt at seeing their company in such a mess, would have swept the management away and substituted people who could run the business to better and more profitable ends. Also, with competition a factor in private industry, this could not have been achieved by the only alternative Mr. Moxley can think of, and that was the raising of the price (fares in this case). Greater efficiency, less waste and certainly less frivolity of the "Biff" and "Buff" type surely do not strike at the workers' standards?

There is another way, of course. A proper, self-respecting and genuine Socialist, if he is honest, will know what to do; he will simply confiscate. Payment of fixed interest to capitalists is not, nor has it ever been, part of Socialism. There is only one snag; the British electorate has shown that it does not agree with this policy (which it could have next month, perhaps, by voting solidly Communist). And so our frightened, hypocritical half-Socialist administrators of our thoroughly capitalist country muddle on in the dim, grey dawn of comprehension that nationalisation is not an anagram of Utopia.

What is my remedy? But no, sir. We have in power a government which claims to have a "policy" for all our ills. I have been waiting for such a policy for six years; it seems there isn't one. What possible justification is there for them to remain in office and keep out the avowed capitalist businessmen?

Yours faithfully,

IAN S. MENZIES

20, Hawthorne Grove, S.E.20

Bedford Station in Midland Days

August 24

SIR,—I read with considerable interest and some amusement in your issue of August 24 the item on the Scrap Heap page, under the title "Picture of a Station Master."

As I live not very far from Bedford I know the layout of that station quite well, and in the days before the loop—by Messrs. Allen's, "Engineers Works," which by-passes the station—I can hardly visualise an express train hurtling through Bedford Station at a mile-a-minute, and safely negotiating the junction to the down fast line without plunging into the River Ouse!

Of course, it may be that the correspondent of the *Bedfordshire Times & Independent* was going back to the days when the old Midland only ran to Hitchin, but even then surely every train stopped at Bedford.

Yours faithfully,

H. W. FRANKLIN

"Staniland," Radwell, Beds.

Holyhead-Dun Laoghaire Service

August 25

SIR,—Now that feelings, aroused by the unfortunate breakdown of adequate transportation of passengers between Holyhead and Dun Laoghaire, are becoming more controlled, it may be worth while to examine present weaknesses. These I think may be divided into three categories: (*a*) sailing tickets, (*b*) facilities at Dun Laoghaire, and (*c*) timekeeping of steamers and trains.

Traffic at weekends has continually increased during the summer and now appears to be getting out of control. On August 10 the *Hibernia*, the *Cambria* and the *Duke of York* were unable to cater for all the passengers offering, and as now revealed no sailing tickets were issued for the *Duke of York* when it sailed that evening. This leads one to suggest that sailing tickets should be issued for all sailings regular or otherwise during the weeks of peak traffic, at any rate at the weekends, if not throughout the week. That does not necessarily solve the problem.

The next approach is to ascertain what other steps may be carried out to relieve the weekend congestion. More traffic might be carried on Sundays. Passengers for the interior of Ireland tend to cross over on Friday nights for the Saturday train services from Dublin, as those on Sundays are few and slow. For example, there is one train to Cork calling at all stations and taking 5¼ hr. There is no regular service to Galway, Sligo, or Westport, yet traffic to the West of Ireland is heavy. It is suggested that for next summer a fast train should leave for Cork, giving a connection off the incoming morning steamer, and which should have a connection to Limerick as well as to Killarney and Tralee. Similarly the Dublin-Galway line should be opened for regular cross-Channel traffic. In the reverse direction there should be trains running into Dublin from the interior of Ireland to connect with the Sunday evening service from Dun Laoghaire to Holyhead. This would enable travellers to reach their destinations early on Monday and so recommence their work on that

day. It might also help to relieve the congestion on Saturday nights. The question of a day sailing on Sundays between Holyhead and Dun Laoghaire might be considered as a means of affording relief.

Another point to consider is the possibility of diverting London and South of England traffic through Fishguard and Rosslare Harbour. Why not through services between Fishguard, Bristol, Salisbury, Bournemouth and Southampton? One does not seem to hear of passengers being left behind at either Fishguard or Rosslare Harbour; the chief trouble in this respect appears to be confined to the Holyhead and Dun Laoghaire route. The fares between London and Dublin would have to be the same by either route.

The facilities at Dun Laoghaire Pier are anachronistic. It is understood by the writer that plans were made and agreed, and the money allocated in 1939 for a comprehensive rebuilding of Dun Laoghaire Pier, together with a new station. Because of the late war the scheme fell into abeyance. At that time there were three interested parties—the Irish Board of Works, the London Midland & Scottish Railway, and the Great Southern Railways. What moves have been made since that date to carry out the scheme, and what has happened to the money allocated for the purpose? The cross-Channel traffic is valuable to all concerned and it is high time the facilities provided at Dun Laoghaire were such as the travelling public has a right to expect these days.

It is unlikely that in twelve months time there will be the necessary new pier and facilities at Dun Laoghaire, so the problem has to be thought out for 1952. Timekeeping is a difficulty both for trains and steamers. The turn-round of steamers at Dun Laoghaire Pier is probably inadequate as things are today, to unload 2,000 people with the limited accommodation and Customs formalities, and the same may hold good at Holyhead. It is well known that steamers arriving at Dun Laoghaire are by no means punctual when traffic is heavy. Often the 9.15 a.m. sailing from Dun Laoghaire is late. The suggestion therefore is for a later departure which would enable travellers from the interior of Ireland to catch this day service, instead of having to spend the night in an already overcrowded city, or concentrate on the night sailing.

This letter is not written in the spirit of criticism but seeks to put forward a few ideas for the solution of a real problem, which the writer by no means underestimates.

Yours faithfully,

J. MACARTNEY ROBBINS

1, El Verano, Wynnsward Park, Clonskeagh, Dublin

Publications Received

The First Hundred Road Motors. R. W. Kidner. South Godstone, Surrey: The Oakwood Press, Tanglewood. 8¾ in. × 5½ in. 58 pp. + 20 pp. plates. Illustrated. Price 9s.—In assembling the widely scattered information about the early use of steam traction on roads the author has rendered a real service to those interested in this phase of transport history. Many will be surprised to learn that 100 road motors were built in the British Isles before 1871. The contemporary evidence has been gathered from a wide variety of sources and the collection of the illustrations was in itself a work of research. There is a useful bibliography.

Hundert Jahre Eisenbahndirektion Wuppertal, 1850-1950; (Centenary of the Wuppertal Divisional Railway Management). Published by the German Federal Railways at Wuppertal-Elberfeld. 11¾ in. × 8¼ in. 146 pp. Illustrated.—This well-produced book commemorates the centenary of the establishment in Elberfeld on October 15, 1850, of what became a Divisional Management of the Prussian State Railways, and later of the whole nationalised German railway system, to secure unified operation of the three principal railways built to serve the Bergisch-Märkisches Land, a part of Germany of great industrial and agricultural importance which was early the scene of competitive railway developments. The situation produced by these competitive lines and the economic conditions resulting from them led the Prussian Government to set up in 1850 a State railway management to direct the policy and working of certain railways and harmonise conflicting interests. This was at first purely a managing arrangement; the actual companies continued to exist as holders of the property but did not directly carry out everyday operation. Not until 1882 did complete transfer to the State take place; the original concerns were not wound up until 1886.

King Dick Hand Tools.—A catalogue dealing with a comprehensive range of hand tools manufactured by the firm has been published by Abingdon King Dick Limited. The catalogue is illustrated and contains details of sets of complete tool kits comprising a full range of sockets and accessories suitable for British and American standard sizes of nuts. These are supplied in a cabinet suitable for wall mounting. Also included are details of tool kits for commercial vehicles and tools and accessories for light or heavy duty.

Design of Welds.—The second of a series of technical publications dealing with the design of welds has been issued by the Quasi-Arc Co. Ltd. This contains a reprint of an article on this subject by Messrs. A. G. Thompson and F. Brooksbank which appeared in the April and May issues of *Welding* and deals with various designs of butt and fillet welds. Diagrams are included indicating the angle and spacing metals to be welded in relation to types of electrodes used. Also given are calculations relating to combined bending and direct stresses supported by diagrams. Practical aspects of welding are also dealt with in this article.

Refractory Materials.—Some typical examples of the uses recommended for a new refractory brick is contained in an illustrated leaflet issued by the Morgan Crucible Co. Ltd. It is claimed that the chemical and physical make-up of this refractory, M.R.I., is such as to ensure resistance to slag attack and that the method of manufacture gives a refractory brick which is rigid at a temperature of 1,600°C. Its characteristics are such that the correct jointing cement must be used and the firm will recommend suitable material for particular applications. This refractory is intended for foundry cupolas, forging furnaces, and copper refinery furnaces.

Krauss-Maffei Locomotives.—The first post-war catalogue of Krauss-Maffei A.G. emanates from the works at Munchen-Allach opened in 1937; but it deals only with pre-war builds—steam, diesel, and electric—to a total of 40 types, each with a photograph and five or six lines of dimensions.

Klinger Jointing.—A booklet published by Richard Klinger Limited contains particulars of various types of jointing manufactured by this firm and the uses for which they are recommended. There are illustrations and also graphs, giving compressibility and resilience tests at varying temperatures, together with a list of recommended grades of Klinger jointings for different chemicals.

Fifty Years of British Standards.—This specially written history is an illuminating record of the British Standards movement, and shows how it originated as the Engineering Standards Committee in 1901, how it has developed and contributed increasingly to the national economy, and how the British model has been followed throughout the world. Separate chapters deal with the influence of the standards movement in the two wars, with the relationship between standardisation and research, and with some of the famous figures in industry and science and the arts who have helped to build the movement. Though the subject is highly specialised the book is written in an easy readable style. Copies can be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1, Price 10s. 6d.

THE SCRAP HEAP

Frogs Invade a Station

Hunmanby Station, on the main Bridlington-Scarborough line, was invaded recently by thousands of small frogs, half an inch long, from a nearby pond. They were in the booking offices, waiting-room, even in the stationmaster's house. They were all over the platforms and the track. Before a train was due to stop the frogs were swept away to prevent passengers slipping when entering the carriages.—*From the "Daily Mail."*

Recruiting for the Railways

The recent announcement by the Railway Executive that to encourage recruitment a bonus will be paid to any member of its staff who brings in a new worker seems, though proclaimed as an experiment, to set a dubious precedent for the conduct of nationalised industry. It may be doubted whether such a bonus is either ethically desirable or a legitimate use of what is virtually public money, and the practical control of the scheme may well present great difficulties if abuses are to be avoided, as, for example, in the immediate payment of 10s. to the introducer on his recruit beginning work. The further payment of 10s. if and when the new employee completes two months' work seems less unjustified economically, but still dubious ethically.—*From a letter to "The Times."*

Railway Queens

Your correspondent, who holds the important position of Secretary to Britain's Railway Queen, should know all that is to be known about "Queens." My recollection is that in Cheshire and Lancashire they are two a penny.

He tells us that this Railway "Queen" business has been going on now for over a quarter of a century. That proves . . . . that this form of idiocy now appears to be chronic. Then he informs us that the Queens have been messengers of goodwill. The British Railways and the railway trades unions would be more likely to create goodwill if they concentrated on giving better service.

He says that this year being Festival year, the Queen did not follow her usual practice of going abroad, and confined her activities to educational tours of Britain. Perhaps he will say who was being educated.—*From a letter to "The Scotsman."*

Train Service Suspended

A man who went to sleep in a railway coach at Port Elizabeth Station awoke at Uitenhage to find that the coach, with him inside, was being lifted into the air by a giant crane.

The man had wanted to travel to Klipplaat, and entered the only coach in the station marked Klipplaat, but the coach was destined for repair.

He slept through the journey to Uitenhage and through all the shunting. The first inkling that the crane operator had of his presence was when a figure appeared at one of the coach windows. —*From a Rhodesian newspaper.*

Baggage Registration, 1851

All travellers by railway in this country complain of the annoyance of looking after their luggage. . . . We ought to take a lesson from the Continent. There, for a trifling consideration (say equal to 1d.) paid to the guard, you receive a ticket, numbered, and to all your luggage a corresponding ticket is attached, by which he is enabled to recognise it at once, and to hand it over to you without confusion; and for such consideration, undertakes so to do. Might not this plan be adopted by our railway guards, by the instruction of their employers to advantage?—*From a letter to "The Manchester Guardian," August,* 1851.

"Stourbridge Lion" Stamp

A Republican Party Representative of Pennsylvania has introduced a private bill to authorise the issue of a special series of stamps to commemorate the first trial run of a steam locomotive, the *Stourbridge Lion,* in the Western Hemisphere on August 8, 1829, at Honesdale, Pennsylvania.—*From "Railway Age."* [*Stourbridge Lion* was one of four sister locomotives built at Stourbridge in 1829 by Foster, Rastrick & Company; the *Agenoria,* one of the class, is now at the South Bank Exhibition in London.]

"Atlantic Coast Express"

Sleek and silent in the station,
Conscious of our admiration,
Little wisps of steam, all wavy,
Oozing from the "Merchant Navy,"
Then the whistle (no commotion)
Sets four hundred tons in motion,
Past old Big Ben's friendly face,
Gathering speed with rhythmic grace,
Throbbing, fuming, quivering, smoking,
Hitting up the pace through Woking,
Ever faster, firebox blazing,
Burning up the track through Basing,
Gliding down the grade sedately,
Whitchurch, Andover, and Grateley,
Through the clouds which threatened rain
Over far-flung Salisbury Plain,
Helter-skelter, harum-scarum,
With a date to keep at Sarum.

Goodbye, graceful spire and steeple,
Goodbye, all you Wiltshire people;
Now the train casts fleeting shadows
In the Dorset water-meadows;
Snorting horses, manes a-tossing,
Flee from every level crossing.
Summerzet—then back again
Into Dorset. Then the strain,
Testing every mighty muscle
For the herculean tussle,
Every ounce of strength laid on
Up the Bank at Honiton.
Ah! That's over—now we glide
Smoothly down the other side;
Now the orchards blush and dimple
In the cider-land of Whimple.
Exeter—a breathing space,
While the Exe flows on apace.

Gentler now, with less insistence,
Dartmoor in the purple distance,
Out across the Cornish heather,
Breasting bluff Atlantic weather,
Easing down, with strength subdued,
Into Padstow—maybe Bude.
Elegant, unruffled "A.C.E."
Come to her appointed place,
Sleek and silent in the station,
Conscious of our admiration.

A. B.

Shotover!

No. 60081, "*Shotover,*" *lives up to its name when taking water at Wiske Moor troughs on the "Queen of Scots." The District Engineer and his assistants endeavour to keep dry!*

Photo] [J. W. Hague

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Operating Results

The operation of the railways, harbours, steamships, airways and aerodromes in the first month of the current financial year (April) resulted in a surplus of £1,160,017. In the corresponding month of last year there was a deficit of £45,026. This favourable result resulted mainly from higher receipts from railway and harbour services, particularly goods traffic and wharfage.

Taking railways separately, the total revenue for the month was £8,819,906, giving a surplus of £1,040,221 as against a deficit of £132,293 in the same month of the previous year. The working of the harbours yielded a total revenue figure of £504,775 which was £226,918 above the expenditure. The same month of the previous year showed a surplus of £120,583. The total revenue from all services for April, 1951, amounted to £9,651,681.

Road Motor Services

During the period January 1—March 31, 1951, new road motor services were introduced over a distance of 445 miles; existing services totalling 261 miles were withdrawn. The fleet now operates over a total route mileage of 26,887.

Inter-city passenger services operated with luxury buses between Cape Town and Durban were well supported during 1950. This five-day trip *via* the Garden Route, Port Elizabeth, and East London, is popular with tourists, resirents in the area, and business travellers. Support for the similar service between Johannesburg and Durban is not so great and it is being operated at a small loss.

Altogether, 14,953,701 passengers were conveyed by the road motor services during the financial year 1950-51, an increase of 1,155,141 on the previous year. Goods traffic totalled 1,852,794 tons. After a thorough survey of national requirements, many new vehicles have been ordered and delivery has already begun of an order for 350 five-ton trailers.

CANADA

Mobile Dental Clinic

Some 6,000 children in Northern Ontario will have their teeth examined and treated in a railway coach. A sleeping coach has been converted for the purpose. It will carry a dentist and his wife, a trained dental assistant, and serve areas which have no resident dentists.

The coach was formally turned over to the Ontario Minister of Health by Mr. A. J. Lomas, Vice-President, Central Region, Canadian National Railways. It is on loan from the C.N.R. and was remodelled in the C.N.R. workshops, to the cost of the Province of Ontario, which employs the dentist and assistant. The mobile clinic will travel a total of 1,700 miles from Goodwin, on the Quebec boundary, to White on the Manitoba boundary, and between Capreol and Rainy River.

UNITED STATES

Freight Rate Increase

The I.C.C. has granted a permanent freight rate increase of 9 per cent. to railways operating in the East and an increase of 6 per cent. to those in the South and West. In its decision, the Commission estimated that the new rates would increase freight revenues by about $548,000,000 annually. The new rates, which include the interim grants allowed last March, may become effective on 15 days notice by the railways.

TURKEY

A.T.C. Trial

The State Railways have decided to equip twelve stations and six locomotives on the Haydarpasa-Pendik section with the Kofler automatic train control system.

ITALY

Methane Gas as Traction Fuel

Anticipating a coal shortage due to diversion of coal for rearmament, the State Railways decided some time ago to develop methane gas traction on steam-worked lines in the region between Milan and Bologna where extensive methane gas deposits have been developed in recent years. Petrol railcars working over a number of lines have accordingly been converted to use methane gas. It has also been decided to replace electric traction on some branches in Northern Italy by methane gas.

SWITZERLAND

Matterhorn Cable Railways

There is growing opposition to plans to construct cable railways up the Matterhorn, and the Swiss Government is stated to be approaching the Italian Government with a view to concluding an agreement that the mountain be left untouched on either side.

Two separate lines are proposed. One from Zermatt to Furggrat, *via* the Hörnli; is opposed by the inhabitants of Zermatt, who would accept an alternative route, which, although spoiling the landscape, would benefit skiers and help to develop Zermatt as a winter resort by making a connection at Furggrat with the other proposed line, which has Italian backing.

The Italian line would begin from the unfinished terminus of the Plan Maison-Furggrat branch of the Brenuil-Théodule Pass *télépherique;* from Furggrat the cables would rise 3,761 ft. to the Italian summit of the Matterhorn (14,705 ft.) in one span. At this altitude the wear and tear on the cables would be very considerable.

FRANCE

Connections with Switzerland

According to a decision recently taken by the National Railways the Pfetterhouse-Bonfol extension of the standard-gauge line from Dannemarie (on the Belfort—Mulhouse main line) to Pfetterhouse is not to be reopened. The negotiations begun by Swiss interests, as mentioned in our July 20 issue, have proved fruitless. The Dannemarie-Pfetterhouse-Bonfol line, built by Germany, was the object of a special convention, first between Switzerland and Germany, and after 1918 between Switzerland and France.

Bus services in replacement will run from Pfetterhouse into Switzerland, as far as Bonfol, there to connect with the chemins de fer du Jura.

AUSTRIA

Coal Crisis on Railways Averted

The last-minute conclusion at Warsaw on August 3 of a trade agreement envisaging substantial supplies of Polish coal to Austria came as a welcome relief in the dangerous coal shortage threatening the steam-worked lines of the Federal Railways during June and July. Poland is to supply 1,000,000 *tonnes* of hard coal during the next year.

Austria is to supply rolled steel, staple fibre, aluminium, and nitrate fertilisers. Austrian requirements of hard coal for the second half of the current year total some 2,490,000 *tonnes*, and the balance is to come from Czechoslovakia, Western Germany, Jugoslavia, Hungary and the United States. Brown coal will be obtained from Jugoslavia and Eastern Germany.

NORWAY

Floods Disrupt Services

Exceptionally heavy rainstorms, especially in the south and the districts around Oslo, have occurred recently. The line between Oslo and Bergen was cut when the roadbed was washed away by floods at one point, leaving the rails suspended. Sometime after the completion of essential repairs, more intense squalls caused further disruptions on the Eastern (Oslo) section of the line and four bridges were destroyed between Gulsvik and Bromma.

Oslo-Bergen services are at present being diverted *via* Fagernes in the Valdres Valley in both directions. A train leaves Oslo at 9.35 a.m., for Fagernes, connecting with buses to Gol (on the Bergen line), whence a train runs to Bergen, arriving at about 1 a.m.

All goods traffic between Oslo and Bergen has been transferred to the steamer route and the Sörland line.

Integration of Transport

Difficulties encountered, and the problem of competition with nationalised undertakings

(*By a Correspondent*)

INTEGRATION denotes a state of affairs which most people would claim to recognise if they saw it, and which, in so far as they believe nationalisation to have been inevitable, they must regard as desirable. Disappointment at the progress so far made towards integration is often expressed as if the only difficulties in the way were those of finance and staff resistance, questions of which everybody is confident he has the solution. What is usually overlooked is that even if these difficulties were solved, there would still remain others implicit in the very idea of integration, and so perhaps even harder to solve.

Towards the integration of freight transport there is a choice of ways. One is to adjust the rates structures so as to attract some classes of traffic to road and others to rail—in other words to influence the consumer's choice of transport on the grounds that road transport is more suitable for some traffics, and rail for others. From the point of view of the B.T.C., there can be only one criterion of suitability: that form of transport is most suitable which costs least and so uses least of the national resources of labour and materials. The principle of this is not affected even although in practice some departure from it were necessitated by Government directions that, for instance, oil imports must be restricted and steam transport must be used though dearer. The application of the principle depends on the development of accurate costing of railway transport to the degree already attained in road transport.

From the transport user's point of view, on the other hand, the cost and the charges based on that cost are not the only criteria. Actual transport charges are only a part of the expense he incurs in moving his products to the consumer: there are such important items as handling and packaging, the layout to which his premises are committed may permit the use only of road transport, or he may be able to make large savings in other directions through the scope allowed by rail transport for using wagons as storage until he can conveniently unload them. The incidence of such factors varies from trader to trader, even within any one industry. Even when accurate costings are worked out so that the scale of the required transfer from road to rail or *vice versa* can be assessed, the tonnage which would actually be induced to transfer would remain largely a matter of guesswork. In any case, redistribution of existing traffic over the various means of transport is no answer to the immediate problem of retaining or winning traffic against "C"-licence competition. Quicker results can be obtained by the joint use of the facilities offered by the various Executives.

Joint Use of Transport

Joint use of premises, transfer of all vehicles to the Road Haulage Executive, sharing of legal and other professional services and so on, may be taken for granted and are already taking shape. The customer is more interested in the joint use of the various transport services to give him the service he requires. This involves a shift of aim, which is no longer to influence the customer's choice, but to establish a case, by virtue of the quality of service offered, for leaving the B.T.C. to choose the means to be employed. There is no threat here to the customer's freedom of choice: he would be asked merely to suspend it until he had tested the quality of the service provided, which he would remain free to refuse. Transport users would not agree to leave the choice of transport to the B.T.C. so long as the charges for each form remained different; the policy could not, therefore, be carried out concurrently with that of attempting to influence the consumer's choice by differential charges. Also, the B.T.C. could exercise its choice of transport on grounds of economy, or of quality of service, or of both; in practice it would have to consider both. In considering economy, however, the need for accurate railway costing would once more be paramount. There would also remain the problem of the consumers who did not agree with the Commission's choice of transport; but the flexibility possible with joint use of services would probably enable the B.T.C. to keep their number to reasonable proportions.

To give the public the benefit of joint use of services, however, it is not necessary to ask for the B.T.C. to have the choice of transport in all cases. If is possible to patch the weak points in the service provided by one means by recourse to another means: each case can be treated individually by agreement with the individual consumer, who pays the charges appropriate to the service for which he has asked but allows the service to be performed by some other means. This policy does not depend on accurate costing; on the contrary, the cost is not counted, so long as the required service can be given, and the traffic either won or retained. Although a good deal can be achieved by such *ad hoc* recourse to measures of integration, they fall far short, as a policy, of what is in most people's minds when they use the term. Yet it is not easy to see what more can be expected of the B.T.C. for some time to come.

Integration of passenger transport offers the possibility that in the long run the B.T.C. road and rail services will be complementary. In thinly populated areas, this will mean withdrawal of one in favour of the other where the two compete. In such cases it is necessary only to consider whether the withdrawal of the road services would be tolerated, to see that it is the rail services which must give way. The important thing is that such steps should be taken for the right reason. It is wrong to give the reason that a service must be withdrawn because it does not pay; the Commission, given its obligations to the public, will always have to run a number of services which lose money. Integration has little chance of being publicly accepted as a policy unless the B.T.C. states frankly in such cases that the most suitable service for the great majority of a rural population can be given by road, and that therefore, it does not intend to supply a rail service as well. In some cases it would be justified in saying this if the rail service were running at a profit, and even where it is running at a loss the probable savings should not be the principal reason for withdrawing it.

Bus and Motorcoach Competition

In areas of denser population and on busier routes the prospects of integration are bedevilled by the competition of road transport interests outside the Commission. These interests provide a necessary supplement to the B.T.C. services at peak periods, when there is not enough transport of all kinds to maintain the standard of service required. In order to operate at the peak periods these interests have to fill in the slack periods, when there is more than enough transport, with excursions and tours, in direct competition with B.T.C. services. More serious competition still comes from the operation by such interests of regular long-distance services over routes parallel to trunk railway routes. These services, which are run only at the most popular times and with limited seating capacity, can be operated only at a profit on the condition that B.T.C. services are available to carry the rest of the traffic. The B.T.C. must either continue to lose traffic to such competition, or run road services of its own on similar terms and in competition with the outside interests; but the latter course is a move away from and not towards integration, which

means the carriage of passengers over the longer distances or in large parties by rail.

Even without these difficulties the problem of integration in the industrial areas would not be simple. In most cases, the movement of populations and industries away from the railways has created a permanent need for road services, except between the larger centres. It is tempting to say that rail services should be confined to non-stop runs between these centres; but there is already a network of express and limited-stop road services on many of these routes, and the problem would be to decide how far the B.T.C. should go in maintaining both. The solution of this problem is already becoming increasingly urgent as the Commission is driven by the need for economies to close intermediate stations to passengers, and so approaches the position where most of its rail services will be between larger centres only. The problem would continue to exist even if there were no serious discrepancy between road and rail fares, as is indeed often the case over the shorter routes. How far it would pay the B.T.C. to transfer express passenger traffic from road to rail depends on the amount of spare train capacity: once the spare capacity was absorbed, it would be a matter of balancing increasing railway costs against decreasing road costs, and the point at which the two curves crossed would differ in each case.

Sundries Services

The difficulties implicit in the integration of freight and passenger transport are not present to anything like the same degree in the case of "sundries," *i.e.*, small consignment in less-than-wagon or motor loads, and it is surprising that there has not been more progress in the development of policy in this field. What the public requires of a sundries service is ubiquity, which, since nationalisation, can be offered effectively only by the B.T.C. It is in fact offered in three distinct forms: the railway goods service, the railway parcels service by passenger train, and the R.H.E. parcels service. Of these, the last two are in direct competition with each other, and the railway goods service to some extent competes with both. Broadly speaking, the railway goods service for sundries is publicly regarded as slower and cheaper than the other two, which tend to be used by traders to whom time is money. In other words, the public is willing to pay for speed when it wants it, but does not want it for all sundries. The Commission might recognise this position, and reorganise its sundries services into two branches, ordinary and express.

Reorganisation

The ordinary sundries service should be by railway goods services. The efforts now being directed to achieving a standard of one-day transits by these services should be modified. Such a standard should be maintained where it exists and extended where possible, but the principal effort should be to ensure that transits are not extended beyond two days.

The express sundries service should be operated by the R.H.E., which should use the existing railway parcels offices at passenger stations at agencies for the booking of traffic only. Railway goods train services should be used, where suitable, for bulk haulage of express sundries between major centres, which need not necessarily be far apart to make such traffic operation profitable.

The rest of the bulk haulage should be by road transport, as should all the collections and distribution except in country districts where joint user of the railway goods collection and delivery services may be more economical. Outside the parcels offices, railway passenger stations would be disencumbered of all sundries traffic, and their facilities available entirely for passengers, luggage, newspaper traffic, and mails. An express sundries service on these lines would offer a one-day transit for most traffic at rates equivalent to the present road and rail parcels services. The ordinary sundries service, at something like the level of present railway goods rates, but with less reference to the value of the goods, would concentrate on achieving better average transits less by increasing the number of one-day transits than by eliminating those of more than two days.

Sundries services are not highly susceptible to competition from "C"-licence holders. The existence of public transport on which he can rely to carry almost anything anywhere, is usually a condition of the "C"-licence holder being able to operate economically or at all. Sundries services therefore offer the best opportunity of producing in a relatively short time a sample of what may be expected eventually from integration over the whole field of inland transport.

DIESEL SHUNTING LOCOMOTIVE GEARBOX.—Modern Wheel Drive Limited is showing at the Engineering, Marine & Welding Exhibition at Olympia a 165-h.p. oil-operated diesel shunting locomotive gearbox, as manufactured for use with Ruston locomotives. This gearbox is of the totally enclosed constant-mesh type, giving four speeds in either direction of travel. It is controlled by two short hand-levers mounted in the locomotive cab, one operating the change-gear cock, and the other selecting forward or reverse movement. The change-gear lever is duplicated each side of the cab and there are no foot controls.

MODEL ENGINEER EXHIBITION.—The 1951 Model Engineer Exhibition, which, as recorded in our last week's issue, was opened at the New Royal Horticultural Hall, London, S.W.1, on August 22, contains the accepted variety of models, covering all the major forms of transport, and trade stands showing a wide range of products. An "Oo" gauge model railway layout, which requires four operators for full operation and was designed and constructed by the Ilford & West Essex Model Railway Club is a feature of the exhibition. The largest engine entered in the exhibition is a 5-in. gauge G.W.R. 4-6-0 locomotive by Mr. P. J. E. Spear; it took three years to build and weighs 168 lb. Mr. A. A. Sherwood is exhibiting a two-mm. scale 2-6-2 locomotive of free-lance design, which is stated to be the smallest working steam locomotive to be built. The locomotive weighs 3 oz., is 5¼ in. long and 1¼ in. high. Among a variety of other interesting railway exhibits is a fine "King" class 4-6-0 locomotive by Mr. L. H. Cheesman, who spent eleven years in its construction. The exhibition, which has been open daily from 11 a.m. to 9 p.m., closes tomorrow, September 1.

RECORD TOURIST TRAFFIC TO BRITAIN.—The British Travel & Holidays Association announces that tourist traffic during July broke all records for the month. Foreign visitors totalled 109,184, 16 per cent. more than in July, 1950, and 52 per cent. more than the pre-war average for the month. It is estimated that in addition there were 15,000 visitors from Commonwealth countries, giving an estimated overall total of 124,184, compared with 108,368 in July, 1950. Sir Alexander Maxwell, Chairman of the Association, states that tourism was one of Britain's most valuable exports during July, when visitors from overseas spent some £10,000,000 in Britain, and there will be substantial additional earnings in foreign currency from fare payments to British shipping and air lines. Tourist traffic for the first seven months of 1951 is now estimated at 407,150, 10 per cent. higher than for the same period last year. Visitors from U.S.A. in July numbered 21,275, a decrease of 7 per cent. over July, 1950, but 12 per cent. more than the figure for July, 1949, and in keeping with expectations, bearing in mind the international situation. The total of European visitors was 22 per cent. higher than last year. Of the July total, 22 per cent. of visitors travelled by air.

POWER-DRIVEN MOBILE CRANES.—A new British Standard (B.S.1757:1951) has been prepared dealing with mobile cranes to cover eight types. These include the full slewing, part slewing, and non-slewing types, which may be fully mobile on their own wheels or tracks or fully mobile and mounted on lorries. The standard also covers semi-mobile and portable cranes. A feature of considerable assistance to the majority of crane builders and users is the comprehensive nature of the clause dealing with testing. The clause dealing with factor of safety follows the conventional lines of other British Standards for cranes although an appendix has been included dealing with stresses in struts. Copies may be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1, price 6s.

COOK'S OFFICE IN DUNDEE.—Thos. Cook & Son Ltd. has opened a new branch in Nethergate, Dundee. It is managed by Mr. Murdoch McLean, formerly of the Glasgow office.

Canadian Pacific "Selkirk" Locomotives

Designed for operating freight and passenger services over the mountain regions of Western Canada

By G. H. Paulin, M.I.Mech.E., M.I.Mar.E., M.I.Loco.E.

THE immensity of the mountain groups in Western Canada is seldom appreciated by those who have never travelled in that region. There are three main mountain chains—Rocky, Selkirk, and Cascade—complete with their snowfield and glacier systems, while the lesser known ranges are the Monasee, Coast, and Purcell. These ranges consist of nearly 600 miles of snow-clad peaks of which 161 are between 10,000 and 12,000 ft. high.

The operation of the mountain division of the Canadian Pacific Railway has always presented difficult problems, particularly in winter, and until the building of the Connaught Tunnel the former route over Rogers Pass was a continual source of difficulty and anxiety. These conditions have meant special attention to the design of the locomotives used in these regions. The line is single-track, and, with the increasing traffic, it became necessary to use heavier and still heavier locomotives.

In 1929 the "T1a" class 2-10-4 engine was introduced. Twenty of these were built and the principal particulars are as follow:—

Cylinders	... 25½ in. × 32 in. stroke
Boiler pressure ...	... ... 275 lb. per sq. in.
Coupled wheel dia.	... ... 5 ft. 3 in.
Tractive effort ...	... ... 7,800 lb.

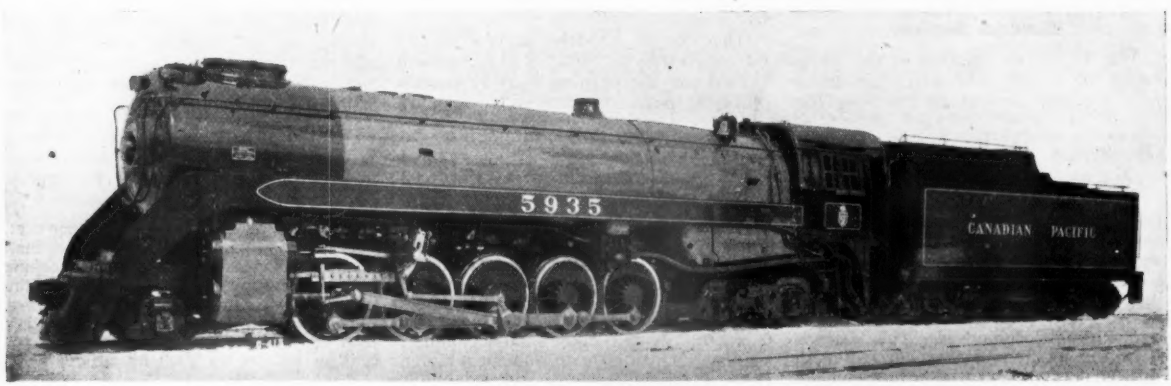
In 1938 the "T1b" class locomotive was put into traffic; ten of these engines were built to the same general design as the "T1a" class except that the cylinder diameter was reduced to 25 in. and the boiler pressure increased to 285 lb. per sq. in. The weight on coupled axles remained as in the "T1a" class, but the total weight of the engine was reduced by 6,000 lb. The "T1c" class was brought out in 1949 and these are the last steam locomotives to be built for the C.P.R.

The "T1c" class locomotive in its general features follows closely the "T1a" and "T1b" classes, but advantage has been taken of the 20 years experience of operation of the earlier engines, and a number of refinements and detail improvements has been incorporated in the design. All three classes were designed to operate mainly over the Selkirks and between Calgary and Revelstoke. The official designation of the type is "Selkirk."

Boiler Construction Details

The boiler is constructed throughout in steel. The first, second, and third shell courses and butt straps are in nickel steel to A.S.T.M. Specification A.203-46 Grade C. The wrapper sheet, backhead, outside throat, and front tube sheet are carbon boiler steel, basic open-hearth flange quality. The firebox crown, sides, door sheet, tubeplate, and throat plate are of basic open-hearth fully-killed steel. The rivets in the longitudinal seams are in nickel steel; all others are of carbon steel.

The barrel has a minimum outside diameter at smokebox tubeplate, of



Canadian Pacific "T1c" "Selkirk" locomotive for passenger and freight services

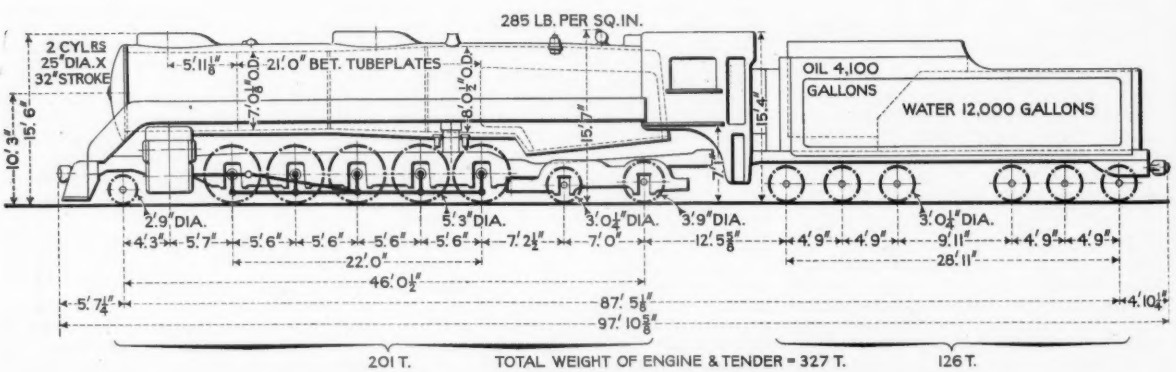
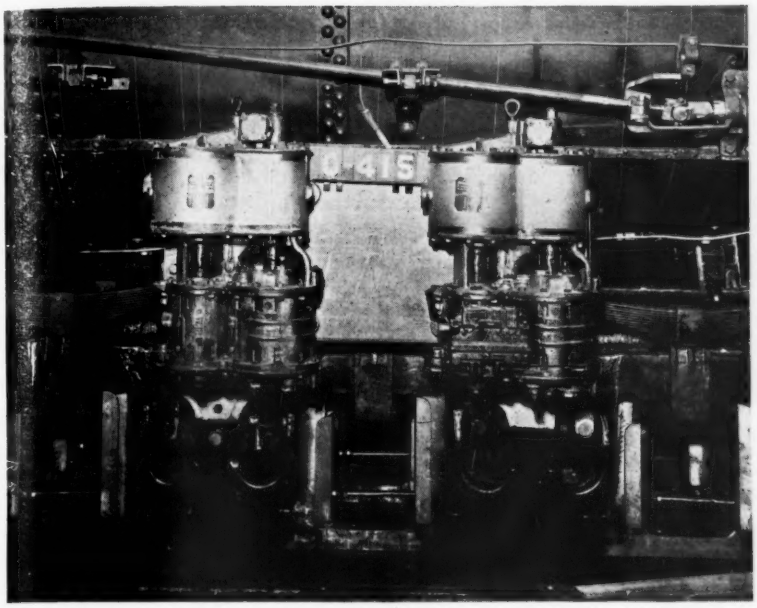


Diagram of principal weights and dimensions of the locomotive



Westinghouse cross-compound air compressors mounted on the right-hand side of the boiler

6 ft. 11⅞ in. with 1⅜ in. thickness of plate; this course is parallel. The second course is tapered and increases to a maximum outside diameter of 8 ft. 0½ in. with 1⅝ in. thickness of plate. The third course is parallel and continues, at the same diameter and thickness, to the throat plate. The crown of the boiler is round, and tapers down towards the back end. The dimension between tube plates is 20 ft. 10⅞ in. Sixty-two carbon-steel tubes, 2¼ in. outside dia., 0·109 in. thick, are provided, together with 156 carbon-steel flue tubes 4 in. outside dia. 0·134 in. thick, and four arch tubes 3½ in. outside dia. Free area through tubes and flues is 1,356 sq. in.

The firebox is extended at the front end to form a conventional combustion chamber with ½-in. thick tubeplate. The smokebox tubeplate has a thickness of ⅝ in. Radial flexible stays are used in the combustion chamber and in other appropriate locations. The firebox is 11 ft. 8⅜ in. long inside, with a width of 8 ft., while the crown thickness is 13/32 in., and the throat and back plate are ⅜ in. thick. The water space, at normal gauge glass level, is 668 cu. ft., and the steam space 185 cu. ft.

Superheater

The superheater is a combination of the types A and E, and is designated by the manufacturers, the Superheater Co. Ltd., as type TL. The particular feature of this modified type is that the elements are shorter and the bends of an improved form designed to prevent accumulation of carry-over solids. An Elesco steam dryer is fitted, and the steam supply to the engine cylinders is controlled by a multiple-valve regulator situated in the smokebox and located on the superheated steam slide.

Water is delivered to the boiler by a steam-driven feed pump located on the left-hand side, nearly over the trailing wheel. The exhaust from this pump is carried to the tender through a large bore pipe. A type NC-5 Elesco feed water heater is fitted, and a Hancock type 2R injector is fitted on the right-hand side as an auxiliary feed.

The feed water heater of the latest type, with tube coils in place of the straight tubes used in the earlier types, is located in a compartment formed in the upper front portion of the smokebox directly in front of the chimney. The water passes from the heater to a top feedbox delivery, located immediately behind the chimney.

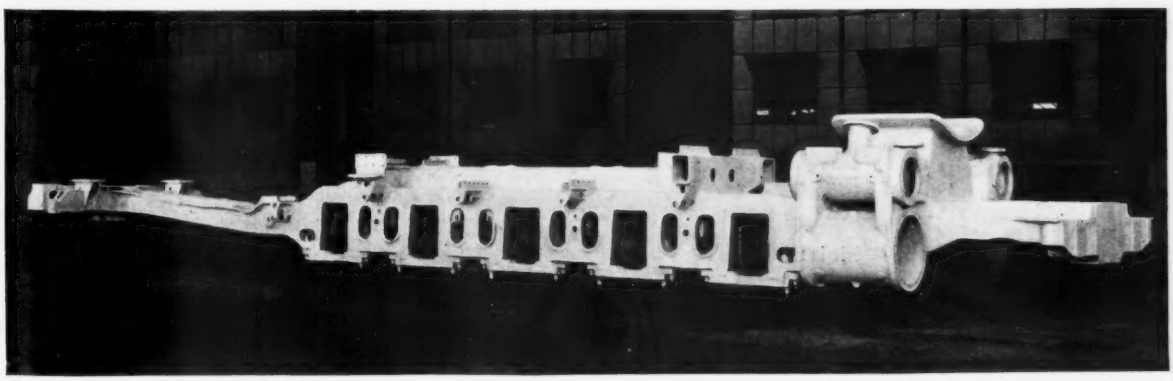
An interesting feature of the smokebox equipment is a hinged hood which is swung over to the front of the chimney during passage through tunnels. The hood, in this position, deflects the exhaust blast well back from the vertical, and down over the boiler. The exhaust from 25-in. cylinders, working on a steep grade, with full regulator and a late cut-off, is extremely heavy, and the deflection of the exhaust in this way assists in preventing serious damage to the linings of tunnels and reduces the loosening and displacement of small pieces of rock in unlined tunnels.

Before the introduction of these hoods instances have occurred where engine crews have been injured by falling pieces of rock displaced by heavily working engines. The hood is operated by an air cylinder controlled by a small valve in the cab, and when not in use, fits behind the chimney. The multi-tone whistle, located alongside the chimney, and the bell, are operated by air cylinders controlled by valves arranged conveniently near the driver. The firebox is arranged for oil firing.

The records of salient figures, taken over extended periods and with average load and weather conditions, between Calgary and Revelstoke, 261·13 miles, over two mountain sub-divisions, show an average oil fuel consumption of 2,380 gal. and a water consumption of 24,000 gal.

Smokebox Vacuum

Smokebox vacuum varies, but a representative average figure is 2 in. W.G. Superheated steam temperature ranges



"T1b" class locomotive frame of integral design; the frame is somewhat similar to the "T1c" class, but without air reservoirs or compressor brackets

around 725°F. Experience has shown that it is desirable to keep the temperature of the fuel oil as near 170°F. as practicable. The cab is equipped with a thermometer which indicates the fuel temperature and enables the fireman to keep the steam heating system adjusted appropriately.

Comparison of Boiler Design Salients

	British Railways Class "7" 4-6-2	N.S.W. Government Railways "D.58" class 4-8-2	Canadian Pacific Rly. Selkirk "T1c" class 2-10-4
Piston area, ft.² ... (PA)	4·36	7·56	6·82
Total evaporative heating surface, ft.² (HS) ...	2,474	3,390	4,590
Heating surface, firebox and C.C., ft.² (FB) ...	210	259	367
Grate area, ft.² ... (GA)	42	65	93·5
Firebox and C.C. volume, cub. ft.	273	385	672
Free area for gas passage through tubes and flues, ft.² (FA) ...	6·79	7·55	9·41
$\frac{HS}{PA}$	568	449	673
$\frac{GA}{PA}$	9·63	8·59	13·7
$\frac{HS}{GA}$	59	52·1	49·1
$\frac{FB}{GA}$	5·00	3·99	3·93
$\frac{FA}{GA}$ per cent. ...	16·2	11·6	10·1

The above table shows a comparison of principal boiler characteristics for three recently designed British Commonwealth locomotives including the latest Selkirk type locomotive "T1c" class.

In considering these figures it should be appreciated that the condensation from a portion of the exhaust steam from the cylinders, and also the exhaust steam from the brake pumps and water pump, is returned to the tender tank. It should also be kept in mind that the Calgary-Revelstoke route involves the passage of the Kicking Horse Pass with its grades up to 2·43 per cent. with spiral tunnels, as well as the long and arduous haul of 51 miles from Golden to Glacier. Here the loads have to be lifted again 1,265 ft. in the westerly direction after having been dropped 1,195 ft. in the passage of the Pass.

Engine and Main Framing

The main framing consists of a unit steel casting extending from the drag-box to the front buffer beam, with cylinders, valve chests, air reservoirs, air compressor brackets, and coupled wheel brake hanger brackets, cast integral.

The weight of this casting, finished, without valve or cylinder liners, is 67,250 lb. The illustration on page 237 shows a "T1b" class frame which is of similar type, but without the air reservoirs, or compressor brackets. It is of interest to recall that throughout the 20 years of operation of these cast-steel frames there has not been a case of fracture. Hardened horn cheeks are fitted, with wedges on the trailing faces.

The cylinders and valves are arranged on horizontal centre lines; the valves are operated by Walschaerts gear, and have 7 in. maximum travel, lap 1¼ in., lead $\frac{7}{32}$ in., and exhaust clearance ¼ in. Laird type crossheads are fitted and the pistons are equipped with sectional piston rings.

An exclusive feature is that all coupled wheel tyres are in a chrome-molybdenum steel developed by Steel, Peech & Tozer. This is a special tyre produced shortly after the "T1a" class went into service. It was found, on these earlier engines, that tyre wear developed quickly, and not more than about 25,000 miles could be expected before turning became necessary.

The arduous service, with excessive track curvature and heavy grades, meant high wear rate in any circumstances. Study of all conditions resulted in a radical change in the tyre manufacture. With the new alloy-steel tyres it is not unusual to accumulate in excess of 70,000 miles before turning becomes necessary. All axle journals, engine, and tender have plain bearings.

In the broken country of the mountain divisions straight track is almost non-existent. Curvature is in places very sharp; in the spiral tunnels in the Kicking Horse Pass it is as high as 10 deg.

The long wheelbase of the 2-10-4 engines presented special problems. To ensure adequate flexibility the wheels of the leading truck have 7¼ in. swing right and left; the leading coupled wheels are provided with an Alco lateral motion device allowing $\frac{5}{8}$ in. movement each side, and the trailing wheels of the booster truck have 9½ in. swing right and left.

The leading coupled wheel flanges are lubricated by oiling devices driven from the axle. Flexibility in the vertical direction is provided in generous measure. The spring rigging is equalised throughout all axles, with an anchor point between coupled axles Nos. 3 and 4.

Long equaliser beams are carried from the leading truck to the front end of the leading coupled wheel spring hangers. Short equaliser beams are provided between Nos. 1 and 2 and 2 and 3 coupled wheels, the trailing spring hangers on No. 3 axle being anchored; also, the leading hangers on No. 4 coupled wheel springs are anchored and short equaliser beams are arranged between No. 4 and the trailing coupled wheels.

An elaborate system of beams couples the springs of the trailing coupled axle to the trailing truck. The design problems will be appreciated from the amount of movement essential in the truck relative to that present in the trailing coupled axle. Equaliser beams are provided.

Idler truck showing booster arrangement

It will be apparent that the whole spring system of the engine is equalised except for the anchorage between coupled axles Nos. 3 and 4. An attractive feature in the spring rigging is that, with the exception of the hangers at the trailing end of the rear axle of the booster truck, where adjustment facilities are desirable, no tension members are screwed.

The booster is type C-2-S and the illustration on this page shows a general view of the complete truck. The two segmental pieces behind the rear springs are the rockers of the truck centring device.

Steam supply to the booster is controlled by a series of air-operated valves, and it is the practice to idle the booster engine for several minutes before starting a train, or before cutting in *en route*. The booster automatically cuts out at 20 m.p.h., but can be cut out manually at any speed below that speed.

The braking arrangements on these heavy locomotives are necessarily elaborate. Clasp brakes are fitted on all wheels of the tender and idler truck, with usual single-block brakes on coupled wheels. The equipment includes two Westinghouse cross-compound 8½-in. air-compressors mounted on the right-hand side of the boiler, with A-2 fin-type aftercoolers, as shown

in the illustration on page 237, which also shows the transmission shaft from the rotary type air-operated reversing engine in the cab. An L-8-PA pedestal-type brake valve is fitted, with provision for reducing the brake block pressure on the coupled wheels when negotiating long severe down grades.

Cab Design and Equipment

The cab is of the short vestibule type with sides sloped inwards to provide maximum clearance in tunnels. The outside shell is constructed of steel plate and lined with tongued and grooved wood, with a suitable air space between. This prevents the formation of moisture inside the cab during very low ambient temperatures. These cabs can be completely closed in, and this makes for much greater comfort in winter, when sub-zero temperatures are not uncommon. In working through tunnels on heavy up-grades the conditions in the cab are considerably improved when the cab doors and windows are closed.

The cab equipment as compared with British practice is complex. The driver has, in addition to the regulator, brake, and other usual controls, power reversing gear, booster controls, power-operated whistle, bell, and chimney hood. There is an automatic blow-down equipment; Pneumercator gauge indicating oil in fuel tank; Ashcroft cut-off control gauge; two smaller gauges by which, through a three-way cock it is possible to indicate and check five separate pressures in the brake system; brake cylinder, brake pipe, signal, main, and equalising reservoir.

A single gauge-glass is provided, together with three test cocks. On the fireman's side, left-hand, the principal controls are the fuel oil, and the damper regulators, together with the feed-pump steam valve. Each valve is marked with a metal disc to indicate its purpose, a desirable feature, as, in addition to those already mentioned, there are nine other wheel valves under the fireman's control.

On the boiler front is a small door through which sand is fed periodically to clear the lighter carbon deposits from the tubes. There is an additional seat on the left-hand side of the cab for the head end brakeman. This member of freight train crews is necessary on account of the great length of the trains. He rides in the engine cab in the normal way of duty. These locomotives are equipped with C.P.R. standard electric lighting arrangement which includes a powerful headlamp, back-up lamps, and appropriate shaded lighting over all gauges inside the cab. Some locomotives have illumination showing clearly the position of the reversing gear.

The tender is built up of riveted steel plate, is carried on two six-wheel bogies, and has a fuel-oil capacity of 4,100 imp. gal., and a water capacity of 12,100 imp. gal.

General Features

The "T1c" class has very clean lines. The removal of the feed-heater and other parts from the smokebox and boiler top, together with the adoption of the later form of boiler cleading and the deep valance along the running board has resulted in an unusually handsome appearance. It is interesting to note the similarity between the deep valance employed on these engines and the form of the valance on the British Railways standard locomotives.

Operational records of the "Selkirk" type locomotives show upwards of 100,000 miles running between general overhaul. In view of their size and capacity, and the extremely hard conditions in which they operate, this is considered highly satisfactory.

The designed maximum speed for the "T1a" class is 60 m.p.h., for "T1b" class and "T1c" class, 65 m.p.h. In addition to freight trains these locomotives work the east and west bound transcontinental "Dominion" expresses.

The writer is much indebted to Mr. W. A. Newman, Chief of Motive Power & Rolling Stock and Research Department, Canadian Pacific Railway, for permission to publish this article, and to Mr. E. G. Bowie, Superintendent of Motive Power, Prairie and Pacific Regions, C.P.R., for information supplied and other facilities.

Principal Dimensions

The principal dimensions and weights of the "T1c" class are given below:—

Cylinders (2) ...	... 25 in. dia. × 32 in. stroke
Piston valves, dia. 14 in.; maximum travel 7 in.	
Wheels, coupled	... 5 ft. 3 in. dia.
leading truck ...	... 2 ft. 9 in. ,,
rear ,, (leading wheel)	3 ft. 0½ in. ,,
rear ,, (trailing wheel)	3 ft. 9 in. ,,
Boiler pressure	... 285 lb. per sq. in.
Heating surface:	
firebox and combustion chamber	... 367 sq. ft.
arch tubes	... 45 ,,
tubes and flues	... 4,178 ,,
Total evaporative	... 4,590 ,,
Superheater	... 2,055 ,,
Grate area	... 93·5 ,,
Weights:	
on coupled wheels	... 311,200 lb.
,, wheels and trailing axle of rear truck (equipped with snow plough) ...	371,700 ,,
,, wheels and trailing axle of rear truck (without snow plough)	369,100 ,,
Total weight of engine equipped with snow plough...	452,000 ,,
,, ,, ,, without snow plough ...	449,000 ,,
,, ,, ,, and tender in working order	732,500 ,,
Tractive effort without booster ...	76,900 ,,
,, ,, with booster	89,400 ,,
,, ,, of booster ...	12,500 ,,
Adhesion factor, coupled wheels only...	4·05
,, ,, booster	4·64
Wheelbase:	
coupled wheels	22 ft.
engine	46 ft. 0½in.
Total engine and tender	87 ft. 5½in.
Length over couplers, engine and tender...	97 ft. 10½in.
Journal sizes of axles:	
pony	6 in. dia. × 11 in. long
coupled (except driving)	11 in. ,, × 14 in. ,,
driving	12½ in. ,, × 14 in. ,,
leading (rear truck) ...	7 in. ,, × 14 in. ,,
trailing ,, ,, ...	8 in. ,, × 14 in. ,,
tender	6 in. ,, × 11 in. ,,

B.O.A.C. Operating Profit.—The British Overseas Airways Corporation made an operating profit of £240,000 in the four months ended July 31. About £200,000 of this was made in July when the revenue reached the record sum of £2,873,000. Recently the B.O.A.C. announced its first operating profit—of £40,000 for April, May, and June—since its formation in 1940. Figures issued in February showed that for the twelve months until then the operating deficit was £3,140,000 as compared with £6,260,000 in the previous twelve months. The overall deficit fell from £7,820,000 to £4,840,000.

New Training School at Crewe.—British Railways are to build a school for training apprentices at Crewe. It will be adjacent to the locomotive works and will supply the locomotive and other technical departments with some 270 apprentices each year. The school will be the biggest and best equipped of its kind on British Railways and will accommodate three times as many apprentices as the existing school at Derby. The building will have two storeys. On the ground floor will be a large workshop, around which will be accommodation for the principal, lecturers, and for administration facilities. Above, on the first floor, will be classrooms, drawing offices, and a library. Adjacent to the school will be an assembly hall which can be used as a gymnasium or cinema. Boys will join the school at the age of 15 and during the year they spend there they will have preliminary practical and theoretical instruction to fit them for the type of work in which they will specialise during the completion of their apprenticeship. The site has already been cleared and building is expected to commence by the end of this year.

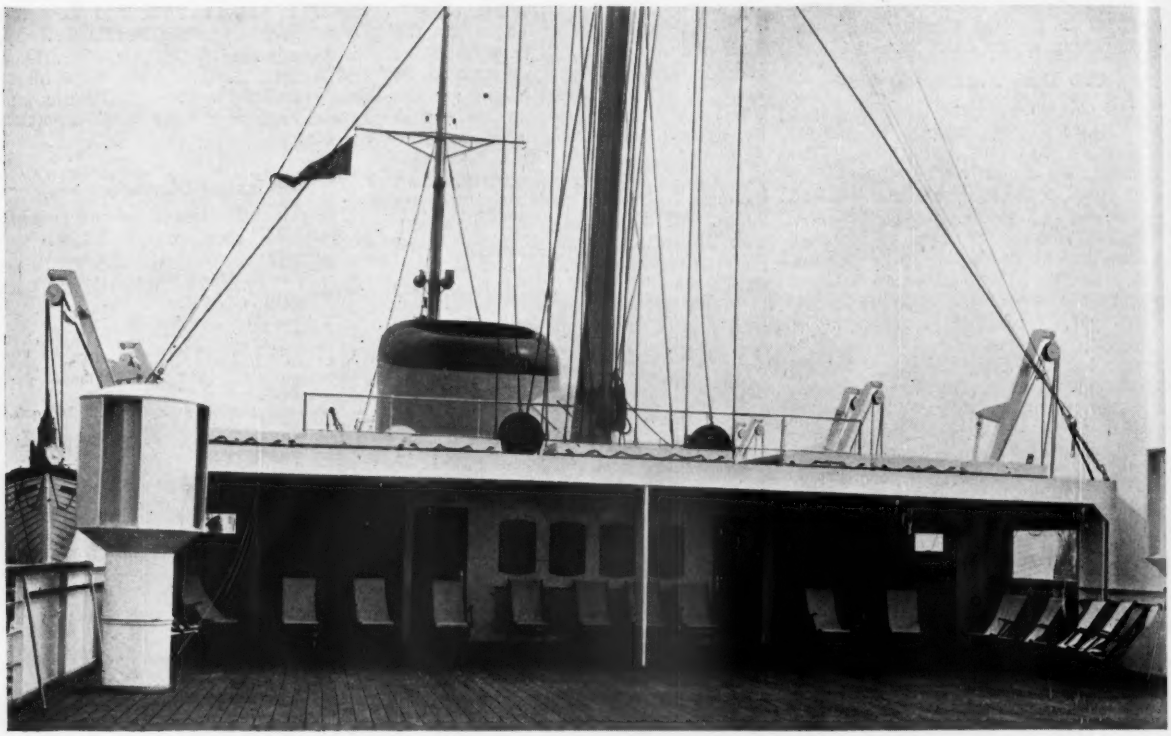
Scottish Region Stations Closing.—It is announced by the Scottish Region that Gretna Green Station will be closed on and after September 10. This also applies to Drum Station between Culter and Park on the Aberdeen-Ballater line. On the same date, passenger train services will be withdrawn from the Ayr-Muirkirk line, the stations involved being Auchincruive, Annbank, Trabboch, Drongan, Ochiltree, Skares, Cumnock, and Cronberry. Alternative bus services will be available.

International Machine Tool Exhibition.—On September 17, 1952, the International Machine Tool Exhibition will open in London at Olympia, and it will remain open until October 4. This event is being arranged by the Machine Tool Trades Association of Great Britain, which since the war has been responsible for similar exhibitions in London in 1948, and in Toronto in 1950 and 1951. Further information can be obtained from the General Manager, Machine Tool Trades Association, Victoria House, London, W.C.1.

History of Nickel Plating.—The theme of the exhibit of Henry Wiggin & Co. Ltd. at the Engineering & Marine Exhibition is the history of nickel since its discovery 200 years ago. The classic papers on which the present Wiggin products are based are shown against a background of uses, and include the first description of the art of nickel plating, early patents on nickel-chromium and nickel-chromium-iron alloys, original papers on the production of malleable nickel and the low-expansion nickel-iron alloys, and material relating to the introduction of the nickel-copper alloys.

New Train Ferry for Dover—Dunkirk Service

(See editorial note on page 226)



Boat deck of M.V. "Saint-Germain," showing entrances to third class lounge

Train deck, with tracks for sleeping cars in centre; stairways giving sleeping-car passengers access to upper and lower decks are provided on platforms (centre background)

New Train Ferry for Dover—Dunkirk Service

(See editorial note on page 226)

First class lounge with (right) windows giving uninterrupted view forward

Interior of dining saloon on promenade deck. The garage for 25 cars is situated aft on this deck

British-Built Vans for New South Wales

Part of an order for 200 steel goods brake vans for the New South Wales Government Railways, at the Birmingham works of Metropolitan-Cammell Carriage & Wagon Co. Ltd. Immediately behind the brake vans are new 16-ton mineral wagons which the firm is building for British Railways

The vans dismantled and crated for despatch. In the background are a number of assembled vans, and also some third class steel coaches for Egypt

RAILWAY NEWS SECTION

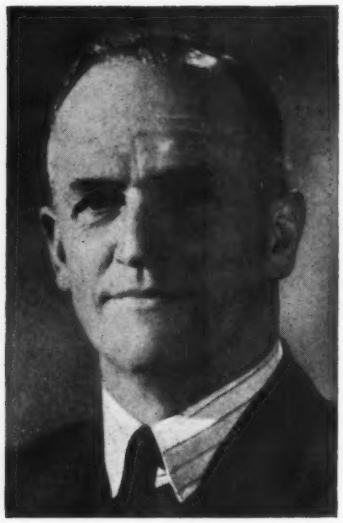
PERSONAL

M. John Favre, Divisional Manager, Lausanne, Swiss Federal Railways, who has been appointed General Manager and will take charge of the Second Department (Commercial, Legal, Statistical & Stores), was born in March, 1911, at La Chaux-de-Fonds and is a native of Le Locle, where he received his primary and secondary education; afterwards he received further education at La Chaux-de-Fonds. Between 1929-32 he studied law at Neuchatel University, and after graduating there in 1932, worked in a lawyer's office; he passed the Advocate's examination with distinction in 1934. M. Favre took his doctorate of law in 1936, and in the same year entered the Federal Services as a Secretary in the Federal Ministry of Industry & Employment. Later he joined the management of the First District of the Federal Railways at Lausanne, as a Legal Consultant, and occupied a position as Secretary in the General Manager's Office, whilst working simultaneously in the Legal Department. In 1939 he was promoted to the rank of first class Jurist, and in 1942 the General Management appointed him as Chief of the Legal Department. He is known as an authority on legal matters concerning rail transport both in Switzerland and abroad, and collaborated in the editorship of the new compendium "Railway Law"; with M. Wick of the Federal Transport Ministry, he also wrote a commentary on this work. M. Favre was subsequently transferred to the First Division, Lausanne, as Divisional Manager, and after little more than a year there, returns to the Central Headquarters as a Member of the General Management.

M. Raoul Dautry, General Manager, French State Railways, 1928-37, and subsequently a Director of the French National Railways, whose death we recorded briefly in our last week's issue, was born in 1880, entered the Ecole Polytechnique in 1900, and left two years later with the diploma of engineer. He joined the Northern Railway of France in 1903 as District Engineer at St. Denis, and was closely connected with the widening of the line to Chantilly, and with other works in the Paris area. A visit to America in 1912 preceded work in connection with the repair and manufacture of permanent way materials and signals. For his war service, mainly concerned with permanent way construction and maintenance, M. Dautry received the Legion of Honour on the field in August, 1918, from Clemenceau and Marshal Foch. After the war, as Chief Permanent Way Engineer of the Nord, he was largely responsible for the reconstruction of the lines in the devastated areas, and it was due to his energy and enterprise that the permanent way on that system was brought up to a standard second to none. After the armistice, he rebuilt 8 viaducts, 811 bridges, 5 tunnels, and 338 stations, in 10 months. The garden cities in connection with the Nord system totalling 12,000 houses, are a lasting memorial to him. In November, 1928, he was appointed General Manager of the French State Railways, which he completely reorganised and brought to a high condition of efficiency which we described in some detail in our issue of January 6, 1933. In 1931 and 1932, while still carrying on his railway duties, he was a Vice-President of the Compagnie Generale Transatlantique, the well-known French Line, and in 1931 he was President of the Aeropostale. He also collaborated with the Franco-German economic commission, and presided over the commission of public relief works (Marquet Plan). In 1934 he was elected President of the French Railway General Manager's conference. and had taken a leading part in drafting plans for rail and road co-ordination. In 1935 M. Dautry was among those appointed by the then Premier, M. Laval, to be his personal adviser on financial matters. M. Dautry retired on June 12, 1937, from the General Managership of the French State Railways and was appointed to one of the two vacancies for directors on the board of the new French National Railways Company which were to be filled by persons "who have rendered eminent railway service." In September, 1939, a fortnight after the outbreak of war, he was appointed Minister of Armaments in the French Cabinet. Following the fall of France in 1940 M.

M. John Favre
Appointed General Manager, Second Department, Swiss Federal Railways

The late M. Raoul Dautry
General Manager, French State Railways, 1928-37

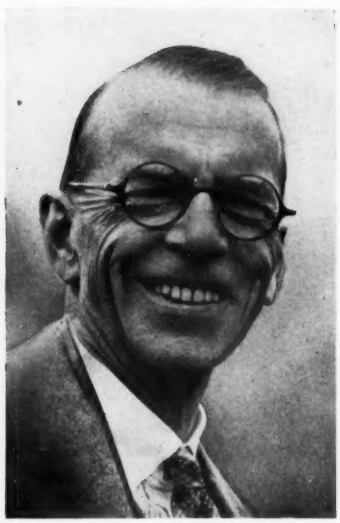


Mr. E. H. Langford

Assistant General Manager, New Zealand Government Railways, 1948-51

Mr. A. J. Ede

Appointed Assistant General Manager, New Zealand Government Railways



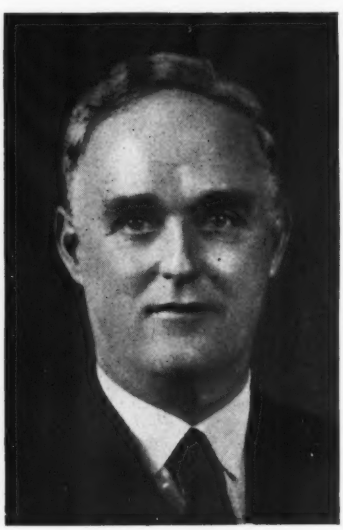
The late Mr. H. G. Brown

Former Managing Director, Westinghouse Brake & Signal Co. Ltd.

Dautry took part in the Resistance Movement and after the liberation, he accepted the post of Minister of Reconstruction & Urbanism in November, 1944. On January 20, 1946, he resigned to become Administrator in the French Atomic Energy Committee, and this appointment was renewed on January 4, 1951. Among the many honours conferred on M. Dautry was Membre de l'Institut and he was a Grand Officer of the Legion of Honour.

Mr. E. H. Langford, M.M., M.A., Assistant General Manager, New Zealand Government Railways, who, as recorded in our August 24 issue, has retired, had held that position since 1948. He joined the Railways Department as a cadet, and in recent years has held a number of important posts, including that of Secretary-Economist to the Minister of Railways. He took a leading part in the establishment of the Price Tribunal and served on the Secretariat of the Stabilisation Commission. Mr. Langford gained the first university bursary granted in Otago and Southland by the Workers' Educational Association; graduated M.A. (Hons.) in Economics; and was awarded the Macandrew Scholarship. He served overseas with the New Zealand Expeditionary Forces in the 1914-18 war, and received the Military Medal. For a period of four months in 1949, while Mr. Aickin was overseas on his investigation of electrification systems, Mr. Langford acted as General Manager of Railways.

Mr. A. J. Ede, Transportation Superintendent, New Zealand Government Railways, who, as recorded in our August 24 issue, has been appointed Assistant General Manager, entered the Railways Department in 1912 as a cadet, and later served overseas for four years with the New Zealand Expeditionary Forces, resuming railway duties in 1919 as a clerk at the District Traffic Manager's Office, Auckland. In 1922 he transferred to Head Office at Wellington and subsequently occupied positions at various railway stations and offices throughout the North Island, until his appointment in 1940 as Train-Running Officer in the District Traffic Office at Wellington. During the second World war, Mr. Ede carried out the duties of Wellington District Liaison Officer between the Railways Department and the Armed Forces from 1940 until 1943, when he was appointed to the Transportation Superintendent's Office as Head Office Liaison Officer. In that position, Mr. Ede was responsible for the movement by rail of all New Zealand and American armed forces personnel, and his work received special mention of appreciation from the New Zealand Army. He was appointed Transportation Superintendent in 1947. In 1949 Mr. Ede visited many overseas railways as a member of the New Zealand



Mr. F. J. Pepper

Appointed Executive Officer (Wagons), Railway Executive

Mr. C. W. Powell

Appointed Assistant Operating Superintendent, Western Region

Mr. R. E. Coward

Appointed Assistant Engineer (Electrification), Southern Region

railway mission which investigated electrification systems in the United States, Canada, Great Britain, Sweden, and Switzerland.

Mr. Harold Gilbert Brown, former Managing Director of Westinghouse Brake & Signal Co. Ltd., whose death we recorded briefly last week, was born in Boston, Massachusetts, in 1875. He made electrical engineering his career and after serving some years at Boston Power Station and on the tramway system of that city, made rapid advancement on the Boston Elevated Railroad, and eventually took charge of all the electrical equipment under the control of the Power Station, which included the generating plant, the tramways and the elevated railroads, overhead and subway systems. In 1902 he joined the Westinghouse Brake Company of London, which was entrusted with the power signalling in connection with the electrification of London's Underground Railways, first in the capacity of Outside Supervisor. He invented the system used and also the train description subsequently installed. The first portion to be completed was the line from North Ealing to Harrow, followed by the Inner Circle and other sections. In 1907 the McKenzie, Holland & Westinghouse Power Signal Co. Ltd., was formed to take over the power signalling work of McKenzie & Holland, the Westinghouse Brake Company, and the Consolidated Signal Company, and Mr. Brown was appointed the first Chief Engineer. In 1914 he became General Manager and in 1916 Managing Director. As a Member of the Institution of Electrical Engineers he was the author of a paper "The Signalling of a Rapid Transit Railway," read before the Institution in 1914, which subsequently became the basis of English power signalling practice. He joined the board of the Railway Signal Company in 1919 and was Chairman from 1932 to 1938. Additional appointments included those of Chairman & Managing Director of Consolidated Signal Co. Ltd., Managing Director of McKenzie & Holland Limited, Saxby & Farmer Limited and Saxby & Farmer (India) Limited. He was also a Director of associated companies in India, Australia, France and Italy. In 1920 associated interests were merged in the present company, then known as the Westinghouse Brake & Saxby Signal Co. Ltd., of which Mr. Brown was appointed Managing Director. He retired from executive office in 1934, remaining on the board, part of the time as Vice-Chairman, and finally gave up his directorship in 1945.

Mr. F. J. Pepper, Outdoor Superintendent, Carriage & Wagon Engineering Department, Scottish Region, who, as recorded in our August 3 issue, has been appointed Executive Officer (Wagons), Railway Executive Headquarters, joined the service of the Midland Railway in 1919 as a privilege apprentice in the Locomotive Works, Derby. From 1925 he was on outside inspection of locomotives building on contract, until in 1930 he entered the Drawing Office, Derby. Mr. Pepper went to the Experimental Section, Derby, in 1933, and six years later took charge of tank production work at Crewe. For a period during 1942 he was attached to the War Department as an instructor in tank maintenance. In the same year he was appointed Works Manager, Kilmarnock, and in 1947 became Outdor Carriage & Wagon Assistant to the Mechanical & Electrical Engineer (Scotland), L.M.S.R., Glasgow. On nationalisation Mr. Pepper was appointed Outdoor Superintendent, Carriage & Wagon Engineer's Department, British Railways, Scottish Region, Glasgow, and since February, 1950, he has been Acting Carriage & Wagon Engineer, Scottish Region.

Mr. C. W. Powell, District Operating Superintendent, Paddington, Western Region, who, as recorded in our August 3 issue, has been appointed Assistant Operating Superintendent, Paddington, entered the service of the Great Western Railway in the Office of the Superintendent of the Line at Paddington in 1915. He served with H.M. Forces from 1917 to 1919, and returned to the Passenger Train Section of the Office of the Superintendent of the Line. Later in 1919 he moved to the Divisional Superintendent's Office at Swansea, and remained there until 1923, when he returned to Paddington. He was appointed travelling clerk in 1934 and the following year acted as an Assistant to the Divisional Superintendent at Paddington. In 1935 he transferred to Worcester as Chief Clerk to the Divisional Superintendent and in 1938 moved to Bristol in a similar capacity. Mr. Powell was appointed Assistant to the Divisional Superintendent at Paddington in 1940 and in 1942 became New Works Assistant to the Superintendent of the Line. Three years later he was appointed Operating Assistant to the Superintendent of the Line, and moved to Swansea as Divisional Superintendent in 1946. He returned to Paddington in a similar capacity in 1947, a post which was later redesignated District Operating Superintendent.

Mr. R. E. Coward, O.B.E., A.M.I.Struct.E., Assistant (General), Civil Engineer's Department, Southern Region, who, as recorded in our July 6 issue, has been appointed Assistant Engineer (Electrification), joined the L.B.S.C.R. in 1915, and from January, 1918, to August, 1919, served in the R.N.A.S. and R.A.F. He returned to railway service, and in 1928 became Assistant Resident Engineer on the construction of the Wimbledon and Sutton railway. In the next year he was made Resident Engineer on various new works, including reconstruction of Pokesdown Station, and construction of the branch line to Allhallows-on-Sea. In 1933 he was placed in charge of the permanent way drawing office of the London East Division, and in 1935 entered the Electrification Section, Chief Engineer's Department, where he was responsible, under the Electrification Assistant, for structural work on various extensions of electrification. In 1939 Mr. Coward was appointed Assistant to Maintenance Engineer. In January, 1940, he was commissioned in the Royal Engineers (Transportation); he served in France, North Africa, and Italy, ultimately becoming Deputy-Director of Transportation (Stores) with the rank of Colonel. For services in North Africa and Italy he was mentioned twice in despatches and awarded the O.B.E. In October, 1945, he resumed duty with the Southern Railway as Assistant Divisional Engineer, Eastern Division, having been appointed to that post in February, 1944, whilst on active service. Mr. Coward was transferred to the London West Division as Assistant Divisional Engineer in January, 1947, and was closely associated with mechanised track blanketing works at Byfleet, Walton, Malden, and Clapham Junction; he became Assistant (General), Civil Engineer's Department, Southern Region, in 1948. He now holds the rank of Lt.-Colonel in the Transportation Staff Increment, Royal Engineers (Supplementary Reserve).

Mr. W. J. Moffatt, Director General, Iraqi State Railways, who has been on leave, will shortly be returning to Iraq.

We regret to record the death on August 19 of Mr. H. Walmsley, Maintenance Engineer, Sudan Government Railways, 1928-31.

Mr. G. C. Thew, Outdoor Assistant to Signal & Telecommunications Engineer, North Eastern Region, has been appointed Assistant Signal & Telecommunications Engineer.

PRESENTATION TO MR. VELTOM

Mr. F. S. Veltom, who retired as Irish Traffic Manager, Western Region, early this year, was entertained by the Superintendents Conference at Paddington, on Wednesday, August 22. Mr. K. W. C. Grand, Chief Regional Officer, attended and Mr. Gilbert Matthews, Operating Superintendent, made a presentation to Mr. Veltom.

Sir Cuthbert Clegg has been elected a Director of the Manchester Ship Canal Company.

Mr. H. Trencham, Consulting Switchgear Engineer, the British Thomson-Houston Co. Ltd., Willesden, is retiring this month.

We regret to record the death in Concordia, Argentina, of Mr. Roger F. Williams, O.B.E., formerly Chief Mechanical Engineer of the Entre Ríos and Argentine North Eastern Railways.

Mr. P. Farnan and Mr. R. M. Wright, representatives of the Victorian Government Railways, arrived in London on August 30, in connection with recruitment for the Railways Department.

Mr. F. Ellis has been appointed Sole Purchasing Agent in London by Rede Ferroviaria do Nordeste do Brasil for its requirements in the United Kingdom and Europe. R.F.N. is the successor to the Great Western of Brazil Railway which was transferred to the Brazilian Government in 1950.

We regret to record the death on August 16, at the age of 84, of Professor F. G. Royal Dawson, V.D., M.I.C.E., M.Inst.T., M.Inst.E.(Ind.), Chief Engineer, Indian Railway Board, 1919-21. He had also been Professor of Roads & Railways, Royal School of Engineering, Cairo, and had served on the Egyptian Light Railways Commission.

London Transport Executive has announced that Mr. T. C. Ball, formerly Assistant Plant Engineer, has been appointed Plant Engineer (Buses & Coaches) and will report to the Works Manager (Buses & Coaches). Mr. A. R. Purves, formerly Assistant Works Engineer (Charlton), has been appointed an Officer of the Executive, with the title of Engineering Superintendent (Road Services).

We regret to record the death on August 26, at the age of 87, of Sir Ernest Clark, G.C.M.G., K.C.B., C.B.E., Governor of Tasmania from 1933 to 1945. He had been a Director of the Underground group of companies from 1926 until the formation of the London Passenger Transport Board in 1933, and between 1928-33 was also a Director of the Whitechapel & Bow Railway. Following a Service at Seaton Parish Church, Devon, on August 30, cremation took place at Weymouth.

Ministry of Transport Accident Report

Near Kirkbride, London Midland Region, British Railways; October 23, 1950

Colonel D. McMullen, Inspecting Officer of Railways, Ministry of Transport, inquired into the accident which occurred at about 1.50 p.m. on October 23, 1950, near Kirkbride, on the Carlisle-Silloth branch, when the 1.15 p.m. passenger train from Carlisle, consisting of four bogie coaches drawn by 0-6-0 J. 39 class engine, No. 64880, travelling at 45 m.p.h. became completely derailed. The engine overturned and the driver and fireman were killed. It was a fine dry day.

The accident took place on a long straight stretch falling at 1 in 337 where the track consisted of *ex*-N.B.R. 84-lb. rails in lengths of 30 ft.. They bore the date 1896 and are said to have been laid over 27 years ago. New Douglas fir creosoted sleepers were laid in 1940, twelve per rail, with cast-iron chairs weighing 40 lb. secured with two screws and two spikes and four-hole fishplates. The ash ballast is about 9 in. deep, old and dirty, slightly deficient in the boxing. The rails have worn down to some 74 lb., but there is no evidence of side cutting, and gall marks are not pronounced considering the age of the rails.

There was little if any movement of chairs on sleepers. The rails did not lie well in the chairs and there were gaps between the foot and the seating. Colonel McMullen watched a train travel at about 100 yd. from the scene of the accident, and even at low speeds the wave effect in the rails was quite noticeable. Alignment of the track beyond the site was satisfactory, but the top was not good and considerable cross-level variation was visible.

There was an overall speed restriction of 60 m.p.h., but 30 m.p.h. has since been imposed. A Hallade record in 1949 showed running to be good on the length where the derailment occurred, but rough at some other points.

The engine was a powerful superheater machine last under general repair in February, 1950, when it was re-tyred and had new springs fitted and weights adjusted, since when it had run 18,000 miles compared with 60,000 between such repairs. A left driving spring had been replaced in August, 1950. The profile of the tyres was found to be good, and total wheel side play did not exceed $\frac{1}{2}$ in., of which $\frac{1}{4}$ in. represented wear. Springs were intact and not displaced. Difference in loading measured afterwards may have been due to the derailment.

Evidence

Colonel McMullen heard evidence from a number of railwaymen, who were either riding in the train or who had driven and fired engines running over the line, generally to the effect that there was a good deal of motion with engines of the class concerned, but not particularly where the accident took place. Most complaints received by the shed master concerned related to a section beyond that point, and a written complaint from the local staff district council concerned had been received on October 18, five days before the accident. The evidence of a number of staff connected with the permanent way also was taken.

The length in question is maintained by a motor trolley gang of eleven, including ganger, sub-ganger, and two patrolmen. The patrolmen responsible and the ganger gave details of their movements, the examinations they had made, and certain maintenance operations they had carried out, such as packing low joints. They referred to various defects and to drivers' complaints, but said the latter had not related to this length, which was not one needing constant attention. The lightness of the track, the short rails, and the age of the ballast increased the difficulty of maintenance. Some of the 30-ft. rails became hogged at the ends and caused joints to pump more frequently. The J. 39 engines were prone to roll mainly on the lighter rails, laid between stations, where speeds were higher. No engines pushed the track out of alignment.

The district permanent way inspector said maintenance was not difficult generally, but the branch required continuous repairing and looking after. He walked over part of the route on August 17, and had done so in July and checked gauge and cross-levels at every joint and near the centre of every rail, but found no low joints or other defects, apart from a few sleepers requiring renewal. Generally, he thought the track to be in very good condition, but had not noticed, until after the accident, that there were gaps between the rails and chairs. This would be found, he said, especially if the ash ballast was old and dirty; in wet weather sleepers were void and got down and the rail came up. Slack keys encouraged sleepers to drop. A patrolman should look for bad alignments and check cross-levels by the eye, and the ganger should walk his length once a month; he had the opportunity to do so. He had spoken to him about the necessity for paying more attention to maintenance because of the deferment of rail renewals. He had not noticed engines rolling abnormally, nor seen the track move to any alarming extent.

He had ridden on an engine every three months, last doing so on August 29, and noticed no rough riding, but there were occasional low joints. Drivers had expressed varying views about the branch, but there had been no particular complaint about the length where the derailment occurred. In 1948 he asked for some rails, including these 84-lb. ones, to be renewed, but so far this had not been sanctioned. He had suggested it for 1951, but had not considered a speed restriction. The track had not, he thought, reached a stage which required it.

A sub-inspector had ridden on a J. 39 class engine drawing 12 empty coaches travelling "pretty fast" and had thought the running to be good. Later he had walked the track on September 28, but did not check cross-levels, although he noticed several low joints, but none sufficiently bad to mention to the ganger. No one had advised him to keep close watch on maintenance because of the deferred renewals.

The chief permanent way inspector rode on another class engine in June and thought running on the whole good. He knew some rail renewals had been deferred, but had not considered asking for speed to be restricted. He spoke very highly of the ganger. No instruction had been issued on it to trolley gangers, but he thought they should walk their length once a week.

The district engineer referred to the

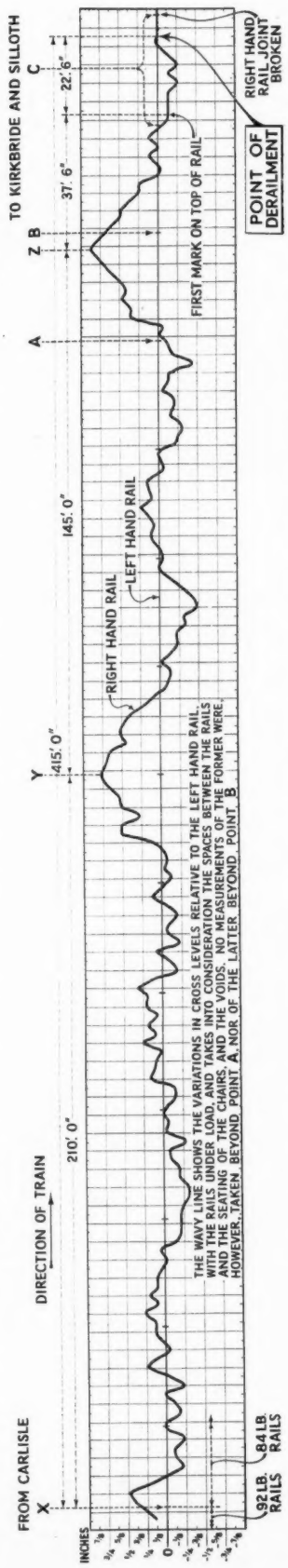

TO KIRKBRIDE AND SILLOTH
FROM CARLISLE
DIRECTION OF TRAIN
X
A
Y
Z
B
C
210' 0"
145' 0"
415' 0"
37' 6"
22' 6"
RIGHT HAND RAIL
LEFT HAND RAIL
FIRST MARK ON TOP OF RAIL
POINT OF DERAILMENT
RIGHT HAND RAIL JOINT BROKEN
92 LB. RAILS
84 LB. RAILS
THE WAVY LINE SHOWS THE VARIATIONS IN CROSS LEVELS RELATIVE TO THE LEFT HAND RAIL, WITH THE RAILS UNDER LOAD, AND TAKES INTO CONSIDERATION THE SPACES BETWEEN THE RAILS AND THE SEATING OF THE CHAIRS, AND THE VOIDS. NO MEASUREMENTS OF THE FORMER WERE, HOWEVER, TAKEN BEYOND POINT A, NOR OF THE LATTER BEYOND POINT B
INCHES
0

Diagram illustrating circumstances of accident near Kirkbride, London Midland Region, October 23, 1950

deferment of renewals and the effects of materials shortages. The cuts imposed on him made him think it useless to repeat this branch in his 1950 programme, but he did so for 1951, thinking work should no longer be delayed. He wrote to his inspectors and asked for ample warning of any case where they felt a speed restriction should be imposed pending relaying. With his assistant he had travelled over the branch on September 22 to do track marking, and the resulting report indicated 850 out of 1,000 marks, equivalent for a "C" class line to "very good." The track at the site of the derailment was thought to be good, and no gaps between rails and chairs had been noticed.

Colonel McMullen travelled with this engineer on a J. 39 engine, returning on a D. 31, reaching 35 to 40 m.p.h. He found the running generally rather rough and at places the J. 39 engine especially had a tendency to nose and roll, even after easing of the regulator, but neither was alarming. This particular engine a driver thought to be the best riding of the J. 39's; it had run 4,000 miles since its last heavy repair.

Inspecting Officer's Conclusions

No responsibility is placed on the enginemen who lost their lives. The track undoubtedly was not in a fit state to carry trains at moderately high speeds, especially hauled by heavy engines, such as the J. 39 class. Colonel McMullen is satisfied that on the timings, trains had to run at about 45 m.p.h., and in some cases nearly 50; the one concerned probably was travelling at 45 m.p.h. It is clear that all engines developed a roll at times on this branch, but especially the J. 39's, as personal experience confirmed, but these engines have no general reputation for rolling or bad riding in other respects and are used regularly for passenger trains up to 60 m.p.h. Some drivers described the rolling on this branch as alarming; they knew by experience where to expect it; this was on lengths other than that where the derailment took place. No abnormal running had been noticed there.

Colonel McMullen feels sure, however, that bad riding had come to be accepted here, and drivers did not appreciate that they were frequently running with a small margin of safety. Any engine would be expected to roll badly at speed on cant variations of the order found, but in this case this probably was accentuated by the flexibility of the track, with short light rails not sitting well in the chairs. Even 50 m.p.h. was too high a speed, and Colonel McMullen agrees with the altering of the speed limit from 60 to 30 m.p.h. made after the derailment. It should have been done previously, but the district engineer was not kept in touch adequately with the situation by the inspectors, who had been advised to watch sections where renewals had been deferred and ask if necessary for speed restrictions. They had not, however, even considered the matter.

It is difficult to accept the inspector's statement that he examined the line thoroughly in the August and noticed no rolling; he, and the assistant engineer also, failed to notice that the rails were not well seated in the chairs; he seriously misjudged the available safety margin and should have asked for speed to be restricted. This may probably be attributed to inexperience, for he had been an inspector only since June, 1948. Before that he was ganger at Carlisle. The ganger was experienced, but Colonel McMullen feels that his work was not adequately supervised and that in the light of what he considered his duties he had performed them satisfactorily. The shed master would have been well advised to deal with the written complaint more expeditiously, but it did not refer to the length where the accident took place. It cannot be said that uneven weight on the engine was a contributory cause, as the variations found might well have been the result of the damage sustained.

Remarks and Recommendations

It is appreciated that an engineer's responsibility when imposing speed restrictions is considerable, but so long as there is a shortage of materials or maintenance staff, such will remain necessary. Engineers will continuously have to face the problem and should err on the safety side. While maintenance was inadequate, Colonel McMullen does not place much blame on the ganger, as there was considerable difference of opinion regarding his responsibility for inspecting the track in the 13¾-miles length. The ganger considered the two patrolmen responsible, though they had not the necessary tools for checking gauge and cross-levels, and that he needed only to make very infrequent checks. The district permanent way inspector on the other hand, thought the ganger should walk his length once a month, and the chief inspector said once a week. If branch-line maintenance by trolley gangs is to be retained, division of responsibility requires closer definition.

The subject of track marking calls for comment. This is comparatively modern and has done much to stimulate interest among permanent way staffs and improve maintenance generally. There was, however, something clearly unsound in the marking of 85 per cent. ("very good") four weeks before the accident and this aspect of the case has already received attention.

Colonel McMullen recommends that consideration be given to an extension of the marking range. This at present is for class C lines from 77 per cent. for "very poor" to 87 per cent. for "excellent" and for primary lines from 80 per cent. ("bad") to 90 for "excellent." An extension of the range would make the task of the marking officer easier and appear to be advantageous from the psychological point of view.

In his report on the Mansfield derailment of September 2, 1950 (see our issue of August 17), Brigadier C. A. Langley said that the limit of 60 m.p.h. should be reviewed "because of the difficulty of maintaining long lengths of line in first class condition with trolley gangs." Colonel McMullen thinks such a limit on the Silloth branch was unnecessarily high and recommends that limits on all such low category lines, especially where there are trolley gangs, be now reviewed.

MILK TRAFFIC FROM NORTHERN IRELAND.—Some 220,000 gal. of milk were carried during the week ended August 25 by British Railways vessel *Princess Victoria* from Larne to Stranraer. The milk is conveyed from Northern Ireland to England by road and rail tank wagons. Road tanks are run on to the vessel at Larne and on arrival at Stranraer the milk is syphoned into rail tanks. The *Princess Victoria* is specially equipped for the conveyance of road vehicles, and is operating, in addition to the advertised sailing at 9 a.m. from Larne, a special "milk tanker only" service to Stranraer daily, leaving Larne Harbour at 3.15 p.m. On an average approximately 20,000 gal. of milk are carried on each trip.

British Railways to Display Refrigerator Vans

On September 3 and 4, during the period of the eighth International Congress of Refrigeration, there will be an exhibition by British Railways at Kensington Olympia Station of vans and containers used for conveying refrigerated produce.

In addition there will be shown insulated freight stock operating *via* the Harwich and Dover train ferries in connection with international traffic under the control of Interfrigo (International Railway Owned Company for Refrigerated Transport) with which British Railways are associated.

The display at Kensington will include the following types of container:

British Railways: Six-wheel refrigerator fish van; 4-wheel insulated fish van; FM type insulated container for frozen meat, soft fruit, and so on; FR type insulated container with bunkers for dry ice; AF type highly insulated container for quick-frozen foods, ice cream, and so on; and an AX type insulated container for dry ice.

Interfrigo: Transthermos refrigerator van; heavily insulated van; refrigerator van; Belgo-Anglaise ferry refrigerator van; and a Transfesa refrigerator van with interchangeable axles to permit running over Spanish and standard gauge lines.

New Containers for British Railways

The illustration below shows a model of a 4-ton steel container of a new type, an order for 1,000 of which, as recorded in our August 3 issue, has recently been placed by British Railways with Cravens Railway Carriage & Wagon Co. Ltd. The new container, which is intended for conveying ground limestone, dolomite, fluorspar, alumina, cement, and so on, is the result of experiments made over a period with a prototype unit.

Model of 4-ton waterproof steel container showing one bottom door open

The container is 4 ft. 10 in. square by 5 ft. 3 in. high and has a capacity of 90 cu. ft.

It is in the form of a waterproof lidded box divided into two equal compartments which can be discharged simultaneously or separately through bottom doors which open by gravity on release of a catch. The hatch cover is fitted with a lift and slide device for operating with a minimum of headroom when open. The opening and closing mechanism of lid and bottom doors is simple to work. The container is provided with cleats on the sides so that sheets may be fixed during unloading to keep down dust.

Staff & Labour Matters

Combined Railway Unions' Claim

The claim by the N.U.R., A.S.L.E.F., and T.S.S.A. for a 10 per cent. wage increase was discussed by the Railway Executive and the three unions at a further meeting on August 28. Certain proposals were made by the Railway Executive, which were not disclosed and are being examined by the unions. The Executive and the unions will meet again on September 10.

Railway Shopmen's Claim

The employees' side of the R.S.N.C. has submitted a claim to the Railway Executive for a substantial increase in pay for railway shopmen. The claim covers shopmen who are members of the N.U.R. or the C.S.E.U. Unlike the claim for a 10 per cent. increase submitted by the railway trade unions, the shopmen have not specified any amount in their application, no doubt due to the fact that engineering workers are to ask for an increase of £1 a week.

Heysham Labour Dispute

Crews of British Railways ships at Heysham Harbour refused last week to sail between Heysham and Belfast. The dispute arose on August 20 when the crew of the cattle boat *Slieve League*, which had been transferred from her home port of Holyhead to Heysham on charter work for the Ministry of Food, refused to sail until they were given better conditions. Crews of other cattle boats and of the Heysham-Belfast mail boats subsequently joined in sympathy, and refused to sail; the passenger service to and from Belfast has been interrupted since August 21, passengers being diverted *via* Stranraer-Larne. Some cargo vessels, however, have sailed, and mail steamers without passengers. Crews of certain vessels have been paid off, but at the time of going to press efforts to settle the dispute are continuing.

FIRTH BROWN TOOLS LIMITED.—Lord Aberconway, Chairman of Firth Brown Tools Limited, stated at the recent annual general meeting that the accounts showed a profit of £381,947, before taxation, which was a considerable increase as compared with last year and reflected both the active trading conditions which had obtained and also profit of a "windfall" nature in respect of which the board had considered it prudent to allocate a sum of £75,000 to contingency reserve. As from January 1, 1951, the company separated its selling arrangements completely from those of Thos. Firth & John Brown Limited, following the implementation with the latter concern of the provisions of the Iron & Steel Act, 1949. Firth Brown Tools (Canada) Limited had in spite of difficult trading conditions in the earlier part of the year maintained their position and earned a reasonable profit. Their shareholding in Hacksaws Limited continues to be a satisfactory investment.

Summary of Welding Productivity Report

United States developments reviewed by British team: extensive welding of railway rolling stock

A productivity team led by Dr. H. G. Taylor, Director of Research, British Welding Research Association, which visited the United States last October, under the auspices of the Anglo-American Council on Productivity and the technical assistance programme of E.C.A., published its report* this week. The terms of reference of the team, stated briefly, were to investigate the use of welding in the U.S.A., with a view to finding out how British industry can benefit. The report lists 28 works visited, including four plants engaged in the manufacture of locomotives and railway coaching stock.

The team has formed the opinion that American productivity in welding is higher than in Britain. The difference may not be great, but this should not detract in any way from the urgency of applying in this country those features of U.S.A. practice which, were they to be applied here, would lead to increased industrial productivity.

The American working man, states the report, has more clearly in mind the direct relationship between greater productivity and a higher standard of living than his British opposite number. He knows that to maintain the high standard to which he has become accustomed it is essential that he should retain his job.

Working condition factors which have some bearing on conditions in this country are the use of two-shift and three-shift systems, which reduce the cost of overheads and speed delivery, though it is appreciated that such a mehod of working is only possible where there is an adequate supply of labour. There is also a general absence of labourers and odd-job men. Labour in the U.S.A. works in much less watertight compartments than in this country, which goes a long way towards eliminating waiting time.

Apart from handling and positioning their own work and assisting generally in any matters pertaining to the weldment U.S.A. welders are engaged full-time on welding. Other factors affecting productivity are the willingness of all parties to try out new ideas even if they reduce the manpower required, the acceptance by customers of standard products, and the arrangement whereby one operator can take charge of more than one machine.

Among the technical factors affecting productivity, perhaps of greatest importance in the opinion of the team is the attention given to planning and routing of work and materials, and the use of all possible mechanical aids and automatic devices to reduce to a minimum the manpower required. This affects the actual welding operation and is shown by the much greater use made of automatic welders and manipulators and the provision of local lifting gear.

Nothing completely new was found in the technical field. The report states, however, that the low-hydrogen electrode is increasing in popularity, and that there is a tendency with all electrodes to use somewhat smaller sizes than previously, $\frac{5}{32}$ in. being the commonest size. Pre-heating and post-heating of pipes is not infrequently done by means of induction heating using the normal 60-cycle supply.

With respect to plant, the a.c. single-operator set is increasing in popularity, but the multi-operator set with separate reactors, commonly used in this country, is virtually unknown in the U.S.A. Automatic welders, both submerged arc and covered electrode type, are much more common than here. The manual submerged arc machine is not very popular. In resistance welding the most significant features were the increasing use which is being made of three-phase machines and of multi-head automatic spot-welding machines.

Several examples of flash welding were seen in which virtually no preparation was used on the mating parts. This appeared to be satisfactory and is naturally cheaper. Some remarkable examples of the adaptability of resistance welding were seen, as, for example, in the flash-welding of the longitudinal seams of 40-ft. pipes, the mash-welding of floor grids, and the roller spot-welding of the roofs of railway coaches *in situ*.

Railway Coaching Stock

The team had an opportunity of visiting workshops engaged on the construction of locomotives and coaching stock. Four plants were seen, three being those of private contractors specialising in building for railways, and the fourth, that of a well-known railway organisation. Of the work seen and impressions gained two features are considered worthy of special mention, the first, the change-over from steam to diesel traction, and, second, the tremendous part that welding plays in general in the construction and maintenance of all coaching stock.

Much greater use is made of resistance welding in the U.S.A. in the manufacture of both passenger and freight stock. This was seen to the best advantage in private shops, where, for example, a 90-ft. roof was prefabricated as a unit, being spot welded after being assembled in jigs. Also, a coach side about 90 ft. long had carlines, ribs, window frames, and so on, located in jigs and then spot welded to the panelling, and, with further jigging of roof, sides, floor and underframe, and ends, the whole assembly was spot and arc-welded together to form a complete unit.

American methods of welded construction and use of alloy steels are thought to be worthy of consideration. Their adoption in this country would mean a departure from standard methods and ideas, but, while they would entail capital expenditure, they would result in new coaches and freight wagons which would take less time and manpower to manufacture and maintain.

The report recommends managements in this country to give more thought to economical planning and invites unions to be more ready to accept labour-saving devices. Attention is drawn to the need to show that it is worth while to earn high wages by the provision of a better supply of consumer goods and it suggests that where more than one union operates in a factory there should be closer co-operation between shop stewards.

Finally, managements and unions should review the labour force in order to effect such economies as may be fairly warranted consistent with efficient production, and it is recommended that union rules should be so framed as to permit more ready entry into alternate forms of employment for any displaced personnel that may be involved.

* "Welding." Published by the Anglo-American Council on Productivity, 21, Tothill Street, London, S.W.1. Price 3s. 6d.

Anglo-Irish Passenger Services

Conference to discuss Holyhead-Dun Laoghaire services; labour dispute at Heysham

Mr. John Elliot, Chairman of the Railway Executive, has written a letter in reply to telegrams received from Mr. J. A. Nugent, Chairman of the Irish Tourist Board, in regard to the Holyhead-Dun Laoghaire steamer services.

While saying that British Railways regret very much any inconvenience to the travelling public, Mr. Elliot cannot accept the contention of Mr. Nugent that Mr. Elliot's reference in his telegram of August 14 to the inadequacy of the Dun Laoghaire berthing facilities is irrelevant. Mr. Elliot points out that responsibility for terminal accommodation at Dun Laoghaire is not British Railways'. "Facilities at Dun Laoghaire have not been improved," he writes. "As a result of this neglect two steamers cannot be dealt with simultaneously, as they should be in any modern port or harbour dealing with traffic of the volume passing between Holyhead and Dun Laoghaire. This is because adequate accommodation has not been provided by the Irish authorities, despite all our representations, and this continued delay has greatly aggravated the difficulties which are inseparable from the working of peak holiday traffic at weekends."

Meeting of All Parties

Referring to the meeting of all the parties interested, which is to be held in Dublin on September 7, under the auspices of the Irish Minister for Industry & Commerce, Mr. Sean Lemass, Mr. Elliot writes: "Since you have acted as the spokesman for all these various authorities on your side, would ask you" (Mr. Nugent) "to do all that you can to see that Mr. Watkins" (the Chief Regional Officer of the Lindon Midland Region, who will represent British Railways, and be accompanied by senior L.M.R. officers) "is afforded a definite assurance . . . that plans are being approved, and contracts placed for the work, without further delay. This would be greatly appreciated."

"I repeat that in the money we have spent on our new ships and on the improvement of our facilities at Holyhead, we have given ample proof of our intention to play our part in providing the best possible service, and we must now look to you in Eire to play your part," Mr. Elliot continues.

"While I am sorry that this difficulty has arisen between us, I would assure you of our desire to co-operate fully with you, both now and in the future, in the satisfactory working of the steamer services in the public interest, and in the development and improvement of passenger travel between Holyhead and Dun Laoghaire, which is so much to our mutual advantage."

The steamer *Hibernia* returned to service on August 26, after being out of commission with engine trouble, as reported in our last week's issue. The *Isle of Thanet*, normally working Anglo-French services, was transferred during the weekend as a reserve ship for the Holyhead-Dun Laoghaire service pending eventual return of the *Hibernia*.

Disputes with Seamen

Delays were occasioned on August 24 at Holyhead by the refusal of the crew of the *Cambria* to sail: they subsequently returned to duty. This refusal appears to have been in sympathy with the crews of Heysham-Belfast and other British Railways ships whose home port is Heysham, who refused in some cases to sail. At the time of going to press, passengers had not been conveyed between Heysham and Belfast since August 21, but arrangements were made for them to travel *via* Stranraer.

Criticism of British Railways

A leading article in *The Irish Times* last week pointed out that passengers were still being left behind at Dun Laoghaire, and criticised the embarkation arrangements both at Dun Laoghaire and at Holyhead, at which latter port, is is stated, accommodation for passengers is inadequate at all times, and "during the holiday season it is pitifully poor." The punctuality of British Railways connecting services also is criticised, and a comparison drawn between Coras Iompair Eireann and British Railways services to the detriment of the latter. The article also suggests that Anglo-Irish traffic *via* Holyhead-Dun Laoghaire has been neglected by British Railways.

The Chairman of the Rosslare Harbour Development Board, Mr. T. J. Forde, has suggested further use of the Fishguard-Rosslare route as a relief to Holyhead-Dun Laoghaire; nationalisation of British railways, he points out, should facilitate adjustment of their shipping services.

Contracts & Tenders

The Canadian National Railways have recently placed a contract with the American Car & Foundry Company for 350 fifty-ton box cars and 250 seventy-ton triple hopper cars to be used on the Grand Trunk Western Railway; delivery of the vehicles is expected during the late summer of 1952.

The New Zealand Government Railways have recently placed an order with the Drewry Car Co. Ltd. for that company's standard type diesel-mechanical shunting locomotives. The order includes seven 200 h.p. 0-6-0 locomotives having a wheelbase of 9 ft. and a weight in full working order of 26½ tons, and also 20 similar locomotives having a wheelbase of 10 ft. and weighing in working order 30 tons.

All these locomotives will be fitted with 8L3 Gardner engines; whilst the transmission will be in accordance with usual Drewry Car Co. Ltd. standard practice comprising rigid traction type hydraulic coupling in conjunction with that company's Wilson-Drewry five speed direct air operated epicylic gearbox, with spiral bevel final drive and reduction unit. All locomotives will be fitted with Westinghouse automatic and straight air brake equipment.

The order also includes one complete spare set of engine and transmission equipment.

An order also has been placed for ten 4AA7 diesel-mechanical locomotives of 37½ tons weight. These locomotives will be 0-6-0 type, developing 260 h.p. at 1,250 r.p.m. Both these and the other 20 locomotives ordered will have roller-bearing axleboxes.

The High Commissioner for Pakistan is inviting tenders for 5 ft. 6 in. gauge diesel-electric locomotives. The forms of tender are returnable by noon on November 1 and further details are given under Official Notices on page 251.

The Moçamedes Railway, Portuguese West Africa, is enquiring for six Beyer-Garratt locomotives for use on the 3 ft. 6 in. gauge, to which this railway is being converted. Tenders are returnable in Luanda, or Lisbon, on October 26.

The closing date of the Victorian Government Railways call for tenders for six 70 ft. engine turntables (twin span electrically operated), has been extended from 11 a.m. on September 12, to 11 a.m. on October 3, according to a report from the United Kingdom Trade Commissioner at Melbourne quoted by the Board of Trade Special Register Information Service. The tender was referred to in our August 10 issue.

The Board of Trade Special Register Information Service recently stated that the United Kingdom Trade Commissioner at Johannesburg has reported a call for tenders (No. A.3255) by the South African Railways for the supply of the following:

250,000 steel sleepers for 81 lb. S.A.R. flat-bottom rails, to drawing E.3085 and in accordance with specification CCE1/23-1951

The drawing referred to may be inspected at the Office of the Chief Stores Superintendent, South African Railways, Johannesburg, any S.A.R. Stores Superintendent, or at the Office of the High Commissioner for the Union of South Africa, Trafalgar Square, W.C.2. Tenders must reach the Chairman of the Tender Board before 9 a.m. on Thursday, September 20.

If posted, tenders must be addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg, and must be despatched in time for sorting by the Post Office into P.O. Box 7784 before the closing time. Other arrangements have been made for deliveries by hand or telegraph.

A copy of the tender documents is available for inspection by representatives of United Kingdom manufacturers at the Commercial Relations & Exports Department (Industries Branch), Board of Trade.

A further report from Johannesburg states that the South African Railways have issued a call for tenders (No. A.3169) for the supply of the following:—

1,250,000 clip bolts and nuts 2⅜ in. × ⅞ in. complete with spring washers to drawing E.3085 and specifications, C.C.E. 1/11-1950 revised October, 1950, and C.C.E. 1/21-1950
322,000 Gauge clips, Type "A"
252,000 Gauge clips, Type "B"
527,000 Gauge clips, Type "C"
Gauge clips to be in accordance with drawing No. E.3085 and specification C.C.E. 1/10-1950, revised October, 1950

As with the tender for steel sleepers, the closing date is 9 a.m. on Thursday, September 20, and the other conditions and arrangements for submitting tenders are similar.

It was recently stated in the Board of Trade Special Register Information Service that the United Kingdom Trade Commissioner at Delhi has reported the issue of a call for tenders (No. SRI—A11157—AIII) by the Directorate General of Supplies & Disposals for the supply of laminated bearing springs of various specifications and quantities. Tenders must reach the Director General of Supplies & Disposals, New Delhi, by 11.30 a.m. on October 4.

Copies of the tender documents and

specifications are available in the Board of Trade Commercial Relations & Exports Department, one of which will be retained for inspection at Thames House North, Millbank, S.W.1., while the others will be loaned to United Kingdom manufacturers in order of application under reference CRE(IB)68902/51.

Notes and News

Port of London Authority.—The Port of London Authority invites applications for appointment as Assistant Chief Draughtsman in the Chief Engineer's Department. See Official Notices on page 251.

Vacancies for Junior Traffic Officials.—Junior traffic officials, about 25 years of age, with railway traffic apprenticeship experience, are required for service on railways in Peru and Bolivia. See Official Notices on page 251.

Mobile Cranes and Castings at Olympia.—Among the exhibits shown by K & L Steelfounders & Engineers Limited at the Engineering, Marine & Welding Exhibition are a Jones KL66 six-ton mobile crane with a 60-ft. lattice jib, and a range of SCOA-P cast-steel locomotive wheel centres.

Standard 4-6-0 Locomotives in Scotland.—Four of British Railways standard Class "5" 4-6-0 locomotives are now working in the Scottish Region and are the first of the class to be allocated there; a fifth locomotive of the batch, No. 73008, is meantime at the Locomotive Testing Station, Rugby. The locomotives were described and illustrated in our May 4 issue.

City of London College Evening Classes.—Enrolment for City of London College evening classes for the 104th session, 1951-52, will begin on September 17 (last session's students only), and will continue on September 18 and 19, from 5 to 8 p.m. each evening. During the session, which begins on September 24, classes are available to prepare students wishing to sit for the examinations of the Institute of Transport at the Graduateship and Associateship stages. Other students interested in transport, but who do not necessarily wish to take the examinations, will also be welcomed.

Metrovick Products at Olympia.—At the Engineering, Marine & Welding Exhibition now being held at Olympia the Metropolitan-Vickers Electrical Co. Ltd. is represented in all three sections. Among the welding exhibits will be found an automatic metallic arc welding machine, which demonstrates the electronic control of deposition of weld metal, and an air-operated spot welder type AS 60. Included also are an atomic hydrogen welding set and a lightweight portable spot-welding gun. Exhibits in other sections include a 55-kV. electron microscope, designed particularly as an inexpensive instrument for routine work in laboratory or factory, and examples of vacuum pumps and crack detectors.

Railway Students' Association. — The annual outing of the Railway Students' Association, London School of Economics & Political Science, has been arranged for September 15, when there will be a motor-coach tour, leaving Dorking North Station at 2 p.m. The itinerary will give views of the southern slopes of the North Downs, the Tillingbourne Valley, and Leith Hill, and has been timed to permit a return to Dorking North to connect with the 7.2 p.m. and 7.18 p.m. trains to Victoria and Waterloo, respectively. The cost of the coach tour, including tea and gratuities, will be approximately 7s. 6d. each, with an appropriate reduction for children under 14.

Recruitment of Staff for Victorian Government Railways.—Mr. P. Farnan and Mr. R. M. Wright, representatives of the Victorian Government Railways, who arrived in London on August 30 for the purpose of recruiting 3,200 men, intend to recruit as many as possible in Great Britain under the Commonwealth Government's Migration Scheme. A campaign will be lodged in Western Germany at the same time for suitable migrants. On account of the housing difficulty in Victoria, single men will be selected as far as possible.

Appeal Tribunal Traffic Act, 1933.—The Minister of Transport has made an Order under section 73 of the Transport Act, 1947, entitled "The Road and Rail Traffic Act, 1933 (Transfer of Jurisdiction of Appeal Tribunal) (Appointed Day) Order, 1951" (S.I. 1951, No. 1467), the effect of which was to appoint August 15, 1951, as the date on which the jurisdiction of the Appeal Tribunal Traffic Act, 1933, was to be transferred to and exercised by the Transport Tribunal. Copies of the Order may be obtained from H.M. Stationery Office, Kingsway, London, W.C.2 (price 2d.).

Eastern Region Winter Train Services.—The Eastern Region has announced that, under the winter train services, which will come into operation on Monday, September 10, the following seasonal named trains will be withdrawn:—

"THE CAPITALS LIMITED"
9.30 a.m. Kings Cross to Edinburgh and Aberdeen

"THE NORSEMAN" (Boat train for Bergen Steamship Company's passengers only)
9 a.m. (W.S.O.) Kings Cross to Newcastle (Tyne Commission Quay)

"THE EASTERLING"
10.30 a.m. (SO) Liverpool Street to Yarmouth and Lowestoft
11. 3 a.m. (SX) Liverpool Street to Yarmouth and Lowestoft
7.10 p.m. Yarmouth (South Town) to Liverpool Street
7.10 p.m. Lowestoft (Central) to Liverpool Street

"THE SCARBOROUGH FLYER"
11.20 a.m. (FSO) Kings Cross to Scarborough and Whitby

Amendments to other services will be as published in the winter timetable shortly to be issued and as indicated in notices at stations. These alterations include a modification to the Interval Service between Liverpool Street and Clacton on similar lines to last year.

Sale of the Leopoldina Railway.—The directors of the Leopoldina Railway Co. Ltd. announced last February that there had been delay in receipt from the Brazilian Government of the purchase price of the railway, due probably to the change of Government in Brazil, but that an assurance had been given that the Brazilian Government intended to complete matters in terms of the sale agreement of May 26, 1949, and the Brazilian law ratifying this agreement, with the minimum of delay. The position, they now state, still obtains that the purchase price has not been paid. The sale agreement became binding on both parties in December, 1950, on signature by the President of Brazil of a law approving the agreement in its entirety. Payment of the purchase price was due within 60 days thereafter. A point was raised with regard to the value to be attributed to the company's stocks of stores, but was settled by despatch of the Minister of Transport in April, 1951. The company is not aware of any question remaining unsettled as between the Brazilian Government and themselves, and their representative in Brazil is empowered at any time to sign the formal deed of transfer. H.M. Foreign Office is being kept informed of the position.

British Railways Coal and Steel Carryings.—During the weekend to August 27 British Railways cleared 292,660 tons of coal from deep-mined pits and open-cast sites, making a total of 3,042,610 tons for the week. The latest figures for iron and steel show that 178,688 tons were conveyed during the week ended August 18 from the principal steelworks.

New Plant for South Wales Docks.—A programme of new works for the principal docks in South Wales, costing £525,000, has been announced by the South Wales Docks, Docks & Inland Waterways Executive. The expenditure, authorised by the British Transport Commission, involves replacement of steam pumping and hydraulic plant by electrical equipment at Cardiff, Newport, and Swansea.

Lord Rusholme in Ulster.—Lord Rusholme, a Member of the British Transport Commission, last week paid a short visit to Northern Ireland to study transport problems there. He was accompanied by Mr. F. A. Pope, a Member of the B.T.C. and also of the Ulster Transport Authority. Inspections were made of the U.T.A. experimental diesel three-coach train working on the Belfast-Bangor line, of a G.N.R.(I.) three-coach diesel train set, and of the U.T.A. Works at Duncrue Street, Belfast. Amongst the subjects discussed was that of restaurant-car services in Northern Ireland.

French Expresses Collide.—Twenty-one persons were killed and some 35 injured early on August 24 when a Basle to Calais express ran at high speed into the rear of a Frankfurt-Paris express, which had been halted by signals in a thick mist at Sanry-sur-Neid, near Metz. All the casualties were in the Paris train which contained many French and American troops. Its last two coaches were wrecked. There were many British travellers in the Calais train. An announcement issued by the Ministry of Public Works states that the accident was the result of a signalling failure.

"Open Day" at Lancing Works.—On Wednesday, September 5, the Southern Region Carriage Works at Lancing will be open to the public during the afternoon. Many modern developments in rolling stock construction will be shown, and British Railways' most up-to-date carriages in all stages of construction may be seen. Guides will be on hand at all points to answer questions. A small admission charge will be made, the proceeds being devoted to the Southern Railway Servants Orphanage and Southern Railway Homes for Old People at Woking.

Crucible Furnaces and Foundry Accessories.—The exhibit of the Morgan Crucible Co. Ltd. at Olympia has been devoted mainly to a display of foundry accessories and crucible furnaces. A selection of Salamander crucibles indicates the wide diversity of products manufactured in these materials. Of particular interest this year is the showing for the first time of the Salamander Suprex crucible for use in

OFFICIAL NOTICES

JUNIOR TRAFFIC OFFICIALS with railway traffic apprenticeship experience. Age about 25, single, required for service on railways in Peru and Bolivia. Apply to the Secretary of the PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

THE High Commissioner for Pakistan invites tenders for the supply of 10 Broad Gauge (5 ft. 6 in.) Diesel-electric Locomotives. Forms of tender, which are returnable by noon on November 1, 1951, to the Director General (Railways), Railway Division, Ministry of Communications, Government of Pakistan, Karachi, may be obtained from the Commercial Secretary, Supply and Stores Department, 40, Lowndes Square, London, S.W.1, between the hours of 10 a.m. and 4 p.m. Mondays to Fridays, on payment of a fee of Ten Pounds (not returnable) per tender. The reference SS.7225 should be quoted on all applications for tender forms.

TRANSPORT ADMINISTRATION IN TROPICAL DEPENDENCIES. By George V. O. Bulkeley, C.B.E., M.I.Mech.E. With chapters on Finance, Accounting and Statistical Method. In collaboration with Ernest J. Smith, F.C.I.S., formerly Chief Accountant, Nigerian Government Railway. 190 pages Medium 8vo. Full cloth. Price 20*s*. By post 20*s*. 6*d*. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

GLOSSARY OF WOOD. A technical dictionary for all associated with timber and its uses. Ten thousand terms about timber—the common and the little known, the old and the new. Ten thousand definitions covering the entire field of timber and its uses—growth, marketing, utilisation. The commercial timbers, their qualities and uses, tools and woodworking equipment, are all here explained simply, concisely and accurately. Illustrated by many clear line drawings. Price 21*s*. net. By post 21*s*. 9*d*. Tothill Press Limited, 33, Tothill Street, London, S.W.1.

TYNE IMPROVEMENT COMMISSION

APPOINTMENT OF ASSISTANT ENGINEERS

APPLICATIONS are invited for the following appointments in connection with the design, maintenance and construction of dock and harbour works:—

(1) ASSISTANT CIVIL ENGINEER.
(2) ASSISTANT MECHANICAL ENGINEER.

Applicants for the first position must be Chartered Civil Engineers having considerable experience in the design and construction under contract and by direct labour, of structural steelwork, jetties, quays, railway layouts, buildings and other works appertaining to port installations. Applicants for the second position should preferably hold a University Degree and have had considerable experience in workshop and design practice in general mechanical engineering and be capable of preparing contract particulars (including drawings) and supervising the construction and installation of electric dockside cargo cranes, pumping machinery, belt conveyors, locomotives (steam and diesel), etc. Applicants for both appointments, who should be under the age of 45 years, will be required to pass a medical examination and to become members of the Commissioners' Superannuation Fund. Commencing salaries will be fixed according to qualifications and experience. Applications stating age, education and training, professional qualifications, experience in the preparation of plans, contract particulars and construction of civil and/or mechanical engineering works, and giving the names of two referees should be addressed to the undersigned (endorsed as to the appointment applied for) so as to be received not later than September 15, 1951.

J. K. McKENDRICK,
Secretary.

Tyne Improvement Commission,
Bewick Street,
Newcastle-upon-Tyne, 1.
August 13, 1951

THE PORT OF LONDON AUTHORITY invite applications for appointment as Assistant Chief Draughtsman in the Chief Engineer's Department—scale of pay £750 by £50 to £950 per annum. Preference will be given to candidates not over 45 years of age who are Corporate Members of the Institution of Civil Engineers or the Institution of Structural Engineers with experience in the design and detailing of reinforced concrete, steel, timber and masonry of buildings, quays, jetties, bridges, walls, piling, etc., and accustomed to organising the work of designers and draughtsmen. Successful applicants will be required to become members of the Port of London Authority's contributory superannuation scheme. In certain cases existing pensionable service is transferable. Application on a form to be obtained from the Establishment Officer, PORT OF LONDON AUTHORITY, Trinity Square, E.C.3.

F. W. NUNNELEY,
Secretary.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25*s*. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2*s*. By post 2*s*. 2*d*. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

THE "PAGET" LOCOMOTIVE. Hitherto unpublished details of Sir Cecil Paget's heroic experiments. Eight single-acting cylinders with rotary valves. An application of the principles of the Willans central-valve engine to the steam locomotive. By James Clayton, M.B.E., M.I.Mech.E. Reprinted from *The Railway Gazette*, November 2, 1945. Price 2*s*. Post free 2*s*. 3*d*. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

---

specially arduous conditions. Among the furnaces on show is seen the recently developed power-tilted central axis furnace and a rotary crucible tilting furnace. This furnace, Type RCF, is fitted with a mechanically rotated bottle shaped crucible specially designed for the melting of swarf and metal powders with a minimum of oxidation loss. This exhibition marks the showing for the first time of the new Morgan M.R.1 refractory.

Special Trains for Gathering of the Clans.—In connection with the Gathering of the Clans on August 18 fourteen special trains were run by the Scottish Region from Glasgow Queen Street and Glasgow Central to Edinburgh. Other specials arrived in Edinburgh from Aberdeen, Hamilton, Motherwell, and Holytown, while 23 special trains carried the crowds from Edinburgh to Glasgow on the Saturday evening.

Nelson Stud Welding Exhibit.—Nelson stud welding is being demonstrated by Crompton Parkinson Limited at the exhibition now being held at Olympia. Other exhibits include a self-regulating alternator set and a range of Crompton Parkinson electric motors and electrical measuring instruments. Some recent developments in fluorescent decorative and industrial lighting are also shown.

International Railway Co-operation.—Reference was made in last week's issue, in an editorial article entitled "International Railway Co-operation," to a survey of international railway organisations by Mr. C. E. R. Sherrington in the April-June issue of the United Nations *Transport & Telecommunications Review;* the name of the journal in question should read *Transport & Communications Review*.

Permanent Way Institution, Manchester & Liverpool Section.—Lt.-Colonel H. B. Everard, Chief Officer Engineering (Maintenance), Railway Executive, and President of the Permanent Way Institution, has expressed his intention of being present at the meeting of the Permanent Way Institution, Manchester & Liverpool Section, on September 15, when Mr. W. Cliffe will read a paper on "Relaying." The meeting will be held in the Temperance Institute, London Road, Southport, at 2.30 p.m.

Vickers Limited Acquire A.B.C. Motors Limited.—Vickers Limited have acquired the whole of the share capital of A.B.C. Motors Limited. Mr. R. M. Dennis, who has been an executive director of A.B.C. Motors Limited for many years, has been appointed Managing Director of that company.

Retired Railway Officers' Society.—The autumn luncheon of the Retired Railway Officers' Society will be held at the Criterion Restaurant, Piccadilly Circus, London, at 12.30 for 1 p.m., on November 13. The principal guest will be Mr. Peter Thorneycroft, M.P., and he will be supported by Sir Robert Burrows.

Industrial X-Ray Equipment.—The main exhibit of Newton Victor Limited at the Engineering, Marine & Welding Exhibition is a "Raymax 250" industrial X-ray unit, designed for operation at 250,000 volts and suitable for the examination of castings, welded joints, and other fabrications up to a thickness corresponding to 3 in. of steel. This is shown as a mobile jib-crane-mounted unit in which all the components are supported on a rubber-tyre chassis.

Overseas Trade in July.—The Board of Trade states that United Kingdom exports in July, at £222·2 million, recovered from the relatively low June total of £200 million to a level equal to that in the second quarter, and 7 per cent. above the average for the first half of 1951. A further increase in export prices partly accounted for the higher value of exports in July, but the volume of exports also recovered, the index for July being estimated provisionally at 170 (1947=100) compared with 173 in the second quarter. Imports, valued at £358·5 million, continued at the high level of recent months. With re-exports at £9·6 million, the excess of imports over exports and re-exports in the first seven months of 1951 was £679·2 million, or nearly double the figure for the whole of 1950. Exports of metals and engineering products totalled £104·5 million in July, £13 million more than in June and 9 per cent. above the average for the first half-year.

Cleveland Bridge & Engineering Co. Ltd.—An issue of 200,000 of 5½ per cent. cumulative preference shares to shareholders of the Cleveland Bridge & Engineering Co. Ltd. at 21*s*. a share was oversubscribed. Applicants for up to 5,500 shares received allotment in full, and applicants for larger amounts were allotted on an average about 87 per cent.

Leyland Diesel Engine Exhibits at Olympia.—Different types of industrial diesel units are being shown on the stand of Leyland Motors Limited at the Engineering & Marine Exhibition. Two self-contained power installations are exhibited and a 95/125-h.p. engine, specially adapted for driving a compressor, is another exhibit. Other exhibits include complete electrical generating sets by Leyland Motors Limited and Auto Diesels Limited.

Industrial Refractories.—Exhibits on the stand of General Refractories Limited at the Engineering, Marine & Welding Exhibition cover the requirements of all types of industrial furnaces. Basic refractories exhibited include a range of bricks for open-hearth, electric, and reheating furnaces, cement kilns, and so on. Specially featured are Ferroclad metal-case chemically bonded basic bricks in which the steel casing and the brick material are pressed together by hydraulic pressure.

Thorn Electrical Industries Limited.—The consolidated balance-sheet of Thorn Electrical Industries Limited for the year ended March 31 shows current assets amounting to £2,685,000 (£1,689,000 a year ago); stocks and work in progress were £1,196,000 (£731,000); sundry debtors, and

so on, £1,426,000 (£760,000), and Government securities and cash, together £62,848 (£197,458). Current liabilities of £1,585,000 (£963,000) include bank overdraft, £107,000 (nil) and sundry creditors, etc., £1,286,000 (£826,000). Estimated capital commitments outstanding at the year end were £126,000.

Special Trains for Highland Meeting.—Seventeen special sailings to and from Dunoon were arranged by the Scottish Region of British Railways for August 25 in connection with the Cowal Highland Gathering. Many relief trains were run between Glasgow and the coast.

Associated Electrical Industries Share Offer.—Associated Electrical Industries Limited have announced that the offer, which closed on August 22, of 330,760 4½ per cent. "B" cumulative preference shares of £1 each to existing preference shareholders was fully subscribed. Applications up to 10,000 shares are being allotted in full, and larger applications scaled down.

Steel Making Exhibits at Olympia.—An interesting exhibit on the stand of the Darlington Forge Limited at the Engineering, Marine & Welding Exhibition is a finished cast-steel back-up roll for a hot strip mill. It is of considerable size, being 20 ft. 10 in. long, with a barrel 10 ft. 10 in. long by 4 ft. 6 in. dia. The total weight is 47 tons and it is one of the heaviest rolls of its type made in this country.

Mishap at Shettleston East, Scottish Region.—The 4.50 p.m. goods train from Kipps to Sighthill, Scottish Region, consisting of tank engine No. 69199 and 50 loaded and empty wagons, when passing from the down main line to the down loop at Shettleston East, at about 5.15 p.m. on August 22, ran through buffers during shunting operations. The locomotive and 13 wagons went down the embankment and the roadway was blocked. There were no casualties.

Forthcoming Meetings

Until September 1 (*Sat.*).—The Model Engineer Exhibition at the New Royal Horticultural Hall, Westminster, S.W.1, 11 a.m. to 9 p.m.

September 1 (*Sat.*).—Stephenson Locomotive Society, Scottish Centres, tour by special train over routes not usually used for passenger traffic, leaving Paisley (East Mineral) at about 2.45 p.m.

September 3 (*Mon.*).—Historical Model Railway Society, at the Stephenson Locomotive Society, 32, Russell Road, W.14, at 7 p.m. "Memories of Some of my Favourite Stroudley Locomotives," by Mr. F. C. Hambleton.

September 4 (*Tues.*).—Permanent Way Institution, Leeds Section, at the Leeds Church Institute, Albion Place, Leeds, 1, at 7 p.m. Exhibition of railway films: "Scientific Research," "Permanent Way," "Work in Progress."

September 5 (*Wed.*).—British Railways, Southern Region, Open Day at Lancing Works.

September 7 (*Fri.*).—Scottish Society of Students of the Locomotive, at 302, Buchanan Street, Glasgow, C.2, at 7.30 p.m. "The Caprotti Valve Gear," by Mr. Peter Fraser.

September 8 (*Sat.*).—Irish Railway Record Society, visit to U.T.A. Works at Duncrue Street, Belfast.

Railway Stock Market

Markets have been cautious and inactive awaiting news of the turn of events in Korea and Persia. In contrast, commodity prices have tended to strengthen and there was a sharp advance in the price of tin on renewed reports that the U.S.A. will recommence stockpiling if the cease-fire talks in Korea are not resumed. British Funds have tended to become firmer on reports that the flotation of more Colonial loans is planned before the end of the year. Dividend limitation uncertainties kept industrial shares dull with small irregular movements prevailing. Sentiment has been affected by the United Nations report emphasising that this year the terms of trade have been running against the United Kingdom, which may either have to reduce imports or expand exports to avert another balance-of-payments crisis. The question of growing German and Japanese competition has also attracted more attention and particularly the news that West German exports are now above prewar.

Foreign rails reflected the less active stock market conditions and prices reacted owing to falling off in demand. There was also a fair amount of profit-taking in stocks which recently moved in favour of holders. In particular Antofagasta came in for profit-taking which put the ordinary back to 13½ and the preference stock to 70½. United of Havana stocks remained active, awaiting the nationalisation terms, though best prices were not held, the 1906 debentures reacting to 20½. Leopoldina moved lower owing to Brazil's prolonged delay in making the "pay-out" to the company, which it now seems may not be received before the end of the year, although it had been expected in February. Nevertheless it should not be overlooked that current market prices of the various stocks are below the expected pay-out levels. The ordinary has eased to 10¼ at the time of writing, the preference to 25¼, the 4 per cent. debentures to 91, and the 6½ per cent. debentures to 140. Leopoldina Terminal 5 per cent. debentures were 91½ and the ordinary units 1s. 1½d.

Elsewhere San Paulo 10s. units eased to 14s. 3d. Manila "A" debentures were 82 and the preference shares 8s. 9d. Bolivar "C" debentures kept at 75 and La Guaira ordinary stock was 90½. Brazil Rail bonds eased to 6¼. Nitrate Rails shares were 23s. 9d. and Taltal 19s. Guayaquil & Quito 5 per cent. bonds were 50. Paraguay Central 6 per cent. debentures changed hands up to 27.

Canadian Pacifics remained active and rose further to 60½. Sentiment still reflected the oil developments and market hopes of a higher dividend. The preference stock was 75½ and the 4 per cent. debentures 93¼. Algoma Central 5 per cent. debentures were 240.

Road transport shares were generally steady, the prevailing view being that most dividends are likely to be maintained, although it is recognised that in general rising costs must mean lower profits. Southdown were 93s. 9d., Lancashire Transport 59s. 6d., West Riding 47s., and B.E.T. deferred stock £495.

The steel shortage affected engineering and kindred shares, but declines were generally small on balance, and some firm features were not lacking. Guest Keen were good at 62s. 6d. on market estimates of the dividend standard, which will be better than originally thought if distributions made from special profits can be included in calculating the maximum permitted under the dividend limitation plan.

Cammell Laird were steady at 13s. in front of the interim dividend announcement, but Vickers eased, although the market also expects that the latter company's interim payment will be the same as a year ago. T. W. Ward strengthened to 70s. 9d., good results being expected, though owing to the Gaitskell plan the market is not looking for a higher dividend. Babcock & Wilcox were 76s., and B.S.A. steady at 43s. 6d., while John Brown at 47s. 3d. were firmer in front of the annual meeting. Powell Duffryn eased to 33s. 6d. and there was profit-taking in colliery shares. Bolsover came back 1s. to 60s. 9d. Elsewhere William Cory eased to 93s. 6d., and British Oxygen were steady at 96s., as were Renold & Coventry Chain at 73s. and Ruston & Hornsby at 35s. 6d.

Locomotive building and engineering shares were generally around the same levels as a week ago with Birmingham Wagon at 37s. 6d. and Hurst Nelson firmer at 59s. 3d. Vulcan Foundry were 27s., North British Locomotive 18s. 10½d., Beyer Peacock 31s., Gloucester Wagon 16s., and Wagon Repairs 14s. 9d. Charles Roberts eased to 98s.

Traffic Table of Overseas and Foreign Railways

	Railway	Miles open	Week ended	Traffics for week: Total this year	Traffics for week: Inc. or dec. compared with 1949/50	No. of week	Aggregate traffics to date: Total 1950/51	Aggregate traffics to date: Increase or decrease
				£	£		£	£
South & Cen. America	Antofagasta ...	811	17.8.51	119,920	+ 43,640	33	3,899,810	+ 1,875,126
	Costa Rica ...	281	June, 1951	c1,121,590	+ c25,461	52	c11,300,123	+ c720,146
	Dorada	70	July, 1951	37,711	— 1,667	30	251,471	— 19 079
	Inter. Ctl. Amer. ...	794	June, 1951	$1,032,974	— $83,457	26	$6,931,651	— $99,579
	Paraguay Cent. ...	274	17.8.51	£376,498	+ £223,557	7	£2,299,445	+ £1,044,854
	Peru Corp. ...	1,050	July, 1951	$7,925,000	+ $450,000	4	$7,925,000	+ $450,000
	" (Bolivian Section)	66	July, 1951	Bs. 13,029,000	+ Bs.5,468,000	4	Bs. 13,029,000	+ Bs. 5,468,000
	Salvador	100	May, 1951	c138,000	+ c31,000	48	c1,867,000	+ c136,000
	Taltal	147	July, 1951	$1,790,000	+ $558,100	4	$1,790,000	+ $558,100
Canada	Canadian National†	23,473	July, 1951	17,681,000	+ 895,000	30	117,434,000	+ 15,331,000
	Canadian Pacific† ..	17,037	June, 1951	12,146,000	+ 1,372,000	26	68,992,000	+ 9,890,000
Various	Barsi Light* ...	167	June, 1951	30,435	+ 1,447	13	113,112	+ 23,872
	Egyptian Delta ...	607	10.4.51	17,513	— 267	4	17,513	— 267
	Gold Coast ...	536	June, 1951	246,509	+ 10,058	13	803,671	+ 81,153
	Mid. of W. Australia	277	June, 1951	43,627	+ 8,943	52	497,708	+ 117,766
	South Africa ...	13,398	28.7.51	1,899,376	+ 242,165	17	32,098,564	+ 4,840,737
	Victoria	4,744	Mar., 1951	1,811,748	— 163,026	39	—	—

* Receipts are calculated at 1s. 6d. to the rupee † Calculated at $3 to £1